722 Gresham Place, NW
A Green Residential Rehab Project

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Practicum in Real Estate Development
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1. Development Program

1.1 Background Information

Green Door Investments, LLC (GreenDoor), is considering the acquisition and redevelopment of a residential property located at 722 Gresham Place, NW in Washington DC. GreenDoor will be a green residential rehab developer, purchasing existing homes in urban areas which needs major rehab to return to the housing stock, and utilizing green technologies to make the home as efficient as possible. Our goal is to reduce energy consumption by at least 50%, either by energy savings or generation, as well as choosing materials that have as little impact on the environment as possible.

The subject is a two-story plus basement duplex located in the Columbia Heights neighborhood of Washington DC. The property does not have off-street parking; however, the property is near major bus lines on Georgia Avenue, as well as less than a 10 minute walk to the Columbia Heights metro station, providing great public transportation access to the site. Additionally, dedicated bike lanes are within two blocks of the site, providing safe bicycle access to job centers downtown.

The property is zoned R-4, and its current use is a vacant duplex, which has not been modernized in at least 40 years. The property has three bedrooms and one bathroom on the second floor, living room, dining room, and kitchen on the first floor, and a large open basement.

The redevelopment plan is to keep three bedrooms upstairs, while adding a master bathroom. A half-bath will be built on the first floor, and a complete one-bedroom in-law suite will be built out in the basement.

To make the home sustainable, solar panels will be installed on the roof, the windows will be replaced with casement windows, the home will be insulated with spray-in foam insulation, and tankless hot water heaters will be installed. Due to the superior performance of the new windows and insulation, the high-efficiency heat pump system will be able to be scaled down - saving additional money in both the system cost and energy usage.

The green features will save approximately 45% of energy utilization. When adding the generating capacity on the roof, the goal is to have a home that

generates enough electricity to support itself most of the year. During peak heating and cooling season, it would be expected that the solar power system will provide most of the electric needs of the home, minimizing the amount purchased from the grid.

1.2 Development Team

Although the development team has not been finalized, below is a sketch of the expected team members and their roles.

Green Door Investments, LLC: The managing member of GreenDoor will be Kenneth W. Rub. Mr. Rub has an extensive background in banking and finance. He has worked for various commercial banks for over fifteen years, with eight years focusing on lending money to residential and commercial property owners and developers. He is licensed to sell real estate in the District and Virginia, and is affiliated with Keller Williams Realty. He is a candidate for a master's degree in real estate development at Johns Hopkins University.

Green Door Investments, LLC will be set up with 30% of the shares owned by the managing member, and 70% of the shares owned by the investors. Investors will get a preferred return of 8% before remaining profits are split among the shareholders. The preferred return will accrue until a property is completed, marketed, and settled, at which time any accrued preferred returns will be paid out.

Each acquired property will be placed in a separate LLC, funded by GreenDoor. The LLC set up for the subject property will be Green Door Gresham I, LLC.

Investors: GreenDoor has not as of yet begun to reach out to investors. However, we have several strategies to attract investors.

1. Socially responsible investment funds have attracted many investors who want an alternative to investments in companies that have questionable environmental or social track records. This fund would be a real estate option for these types of investors.
2. Environmental not-for-profits allow people to donate to organizations that helps protect the environment. For example, the Nature Conservancy had almost $5.5 billion in assets as of June 2007, with annual gifts exceeding $500 million. This investment opportunity would give investors a chance to reduce energy consumption and greenhouse gases, and get a financial return at the same time.

3. Many individuals and families would prefer to live in a green home, but there are none available on the market. By investing in the fund, they would be given the first option to purchase a newly remodeled green home before it goes on the market.

The first fund would be capped at $500,000; however, a minimum of $300,00 would need to be raised or the funds would be returned to investors. In order to attract as many investors as possible to get involved in green rehab, as well as attracting as many potential clients who might want to purchase a green home, the minimum investment would be set at $5,000.

Finance: A community bank will offer the most flexibility. I have identified Washington First Bank as an ideal partner for GreenDoor. Mr. John Kell, VP, has provided preliminary information on how the bank would structure a line of credit to be drawn upon at closings of rehab properties. The amount to be drawn on each home would be predicated upon an as-renovated appraisal, subject to a cap of 65% LTV. Additionally, the draw for the acquisition would be capped at 70% of the purchase price, and the construction and soft-cost draws would be capped at 80%, not to exceed the 65% as-completed LTV. Interest rates would range from 200 bps to 300 bps over the prime rate, depending on the amount of deposits held at the bank. The up-front fee would be 1%. Additionally, the managing member would have to provide a partial guaranty of the loan facility.

Vendors: Vendor partners are very important for systems that will not be managed or installed by the general contractor. For this project, the only vendor outside the scope of the general contractor is the solar power system. We have identified Standard Solar, Inc. to install the solar photovoltaic system. Standard Solar was founded in 2005 in Gaithersburg, Maryland and has installed hundreds of solar systems in the Washington metro region.

Accountant: I have identified Snyder Cohen to serve as GreenDoor's CPA and business consultant. Founded in 1927, they have a long history of provided excellent accounting advice to real estate companies.

Legal: I have selected Miles and Stockbridge in Towson, Maryland as GreenDoor's lead law firm. With nine offices in Virginia and Maryland, and almost 200 attorneys, they are small enough to give excellent client service while bringing the resources of a large firm. Sandra Howard will be the lead attorney with

GreenDoor. Mr. Rub and Mrs. Howard have worked on dozens of transaction over the past ten years, and she will be a great advisor for GreenDoor.

Contractor: I have received a construction bid from Kolo Construction, Inc. The principal, John Kolo, is an experienced property rehab contractor with an eye for detail and quality work. He has worked extensively throughout Columbia Heights.

1.3 Site Description

The subject property is located on Gresham Place in the Columbia Heights neighborhood of Washington, DC. Gresham Place is only two blocks long, extending from the MacMillan Reservoir to Georgia Avenue and from Georgia Avenue to Sherman Avenue.

[Source: Google Maps]

The subject is located on the 700 block of Gresham Place, between Georgia Avenue and Sherman Street. Georgia Avenue, an extension of 7th Street NW, is a main north-south thoroughfare from Downtown DC through Silver Spring and beyond to Brookeville, Maryland. The avenue, twenty-four miles in length, passes

both Howard University and Walter Reed Medical Center. Georgia Avenue is served by both regular bus service and express bus service to work centers downtown.

The property is located only 6/10ths of a mile from the Columbia Heights metro station. Alternatively, the property is located 7/10ths of a mile from the Petworth metro station, and 9/10ths of a mile from the Shaw metro station.

Amenities such as restaurants, bars, and various retail stores are located within walking distance of the property. Near the Columbia Heights metro station is an urban shopping center, restaurants, a health club, and other stores, further described in the Market Analysis section. Approximately one mile from the property is the U Street Corridor, a bohemian collection of shops, restaurants, nightclubs, galleries and residences along a nine-block stretch of U Street.

There are numerous schools within a short walk of the property. There are three public elementary schools within four blocks of the property; Bruce Monroe Elementary School, Harriett Tubman Elementary School, and E. L. Haynes Elementary School. Within seven blocks is Lincoln Middle School, a public middle school, and within five blocks are two public high schools, Cardozo and Banneker. Additionally, there are more than 10 charter schools within one mile of the property.

The closest universities are Howard University within a couple blocks of the property. Catholic University and Trinity University are also located within 1.5 miles of the property. Five hospitals are located within one mile of the property: Howard, Washington Hospital Center, Children's, National Rehab, and Veterans' Affairs Medical Center.

Downtown employment centers are easily accessible by car, bus, or bicycle, or metro. The epicenter of downtown DC, Connecticut and K Streets NW, is 2.3 miles away. The distance to major entertainment centers are outlined below:

Convention Center	1.6 miles
Verizon Center / Chinatown	2.1 miles
Kennedy Center	2.7 miles
Georgetown	3.1 miles

The property is situated on 1,375 sf of land, with the front of the house facing north on Gresham Place NW. According to the District zoning map, the property is

zoned R-4, row dwelling and flats. One-half block away, Georgia Avenue is zoned C-2-A, community business center – low moderate density.

According to the DC Office of Zoning, the R4 zoning "permits matter-of-right development of single-family residential uses (including detached, semi-detached, row dwellings, and flats), churches and public schools with a minimum lot width of 18 feet, a minimum lot area of 1,800 square feet and a maximum lot occupancy of 60% for row dwellings, churches and Flats, a minimum lot width of 30 feet and a minimum lot area of 3000 square feet for semi-detached structures, a minimum lot width of 40 feet and a minimum lot area of 4000 square feet and 40% lot occupancy for all other structures; and a maximum height of three (3) stories/forty (40) feet. Conversions of existing buildings to apartments are permitted for lots with a minimum lot area of 900 square feet per dwelling unit." [Source: District Zoning Regulations]

Seeing that the lot does not meet the 1,800 sf requirement to convert the basement into a legal apartment, the space will be built out as an in-law suite. This allows a family member, nanny, or other guest to have a private suite, including a kitchenette, with its own entrance into the suite. Many of the duplexes on Gresham Street have built in-law suites to maximize the living space in their home.

1.3 Description of Existing Improvements

The property is improved with a two-story duplex plus basement. Total square footage is 1,384 square feet above-ground, and the basement is 692 square feet, for a total of 2,076 square feet. The property was built in 1910, and currently has three bedrooms and one bathroom. The exterior of the structure is all-brick.

The property is duplex, so it has access from three sides. Front and rear access is on the first floor, with side access to the basement. The property is downward sloping from front to rear, so the rear door is raised up on a back deck with stairs down to the ground.

The home is currently vacant, and there are signs of water damage from a leaking roof on the second floor. The flooring is hardwood, with concrete flooring in the basement. The home has no central air conditioning, and a boiler in the basement provides radiant heat throughout the home.

The kitchen and all bathrooms have very dated appliances and fixtures. Additionally, the windows are old single-pane windows that don't work properly,

and will need to be replaced as well. Plumbing and electric do not meet today's safety and efficiency standards. The property is in need of a gut rehab.

In the appendix are two floorplans that outline the existing floorplan for the first and second floors. The basement is the same shape as the upper floors, with no dividing walls. As you walk up the front steps, a front porch extends across the front of the home and wraps around the side. The porch is 17.5' across and 5' wide at the front. It wraps around the corner to go 12.5' back, and 3' wide.

The front door is on the left of the duplex, and you enter into a 4' by 3.5' entrance foyer. Directly in front of the foyer is the staircase to go upstairs, and a long hallway that takes you to the back of the house toward the kitchen. To the right of the foyer is the living room, which is approximately 12.5' by 10'. The room has two windows at the front looking onto the front porch. A large opening gains access to the dining room, which is 13.5' x 12'. This room has a 3' pop-out, with two windows on each side. In the back of this room is a 3' by 4' closet.

A doorway provides access back into the hallway, and the kitchen is off to the right. The kitchen is approximately 10' x 12.5', with a window on the back wall, as well as a door to a deck in the back. The kitchen sink is directly below the window, and the stove is off to the left. The kitchen does not have modern cabinetry, but has a cupboard on the interior wall. To the right of the back door is a 9.5' x 4' pantry, which currently has an old refrigerator and a window.

Moving up the stairwell, the bathroom is at the top of the steps on the interior wall. The bathroom is 9.5' x 5.5', has a tub, sink and commode with a window on the back wall. To the right is a 12' by 8.5' bedroom, with a window on the back wall and window on the exterior wall. A small closet is configured in the corner. The second bedroom is 13.5' x 12', with two windows configured in the pop-out like the dining room below. There is not a closet in this room. The front bedroom has three windows on the front wall, and is approximately 14.5' x 12.5'. A small closet extends back over the stairwell.

Going back downstairs, the access to the basement is near the kitchen. The basement is open, with no dividing walls. Towards the front of the house is where the boiler and hot water heater is housed. There are three small windows, and the door is towards the back of the house. The room is approximately 14.5' by 38.5'.

Each room has only one or two electric outlets, and no phone or cable wiring was observed. The walls and ceiling are plaster, most likely without any insulation behind them. The plaster was very cool to the touch on the exterior walls.

1.4 Proposed Development

The improvements will dramatically shift the use and marketability of the property. The plan will create a one-bedroom in-law suite in the basement, while retaining the three bedrooms on the second floor and adding a bathroom, and adding a half-bath to the first floor. In the appendix are three floorplans and a section elevation that outline the proposed floor plan.

All interior walls on the first floor, with the exception of the closet in the dining room and the pantry in the kitchen, will be removed to create an open floor plan. None of these walls are load-bearing. Upon entry into the home, the stairs will remain directly in front, and you will have a clear view all the way to the back door in the kitchen.

The closet in the dining room, as well as part of the pantry, will be converted into a half bathroom. The pantry will house a stackable energy-efficient washer and dryer, as well as the furnace and heat pump.

The kitchen will have the sink under the window on the back wall. On the interior wall will be cabinets, stove, microwave, refrigerator, and dishwasher. The countertop will then come back into the room to provide more cabinet space and bar seating.

As you move upstairs, the bathroom and rear bedroom will remain configured as they are. In order to build a master bath, the middle bedroom will be made smaller in order to build a bathroom taking advantage of the front window in the pop-out area. Additionally, the hallway will be shortened, adding additional room to the master bedroom.

The basement will be converted to an in-law suite, complete with bathroom and kitchenette. The door, which enters from the side of the house towards the rear, will open into the living/dining space. A wall will be built at the front edge of the pop-out area, and the kitchen will be built in the pop-out area and against the bedroom wall. The bedroom will be towards the front of the house. The stairwell will remain on the interior wall.

2. Market Analysis

2.1 Washington DC MSA Market Analysis

The Washington DC Metropolitan Statistical Area (MSA) had an estimated 1,523,703 households in 2007, up from an estimated 1,521,095 households in 2006. The population increased from 4,054,335 in 2006 to 4,069,534 in 2007 in 2007, an increase of 15,199. [Source: American Factfinder]

The Washington DC MSA had a mean salary of $54,854/year as of May of 2007, as compared to $64,150/year in the District of Columbia. The Washington area currently enjoys the lowest unemployment rate in the nation: 4.1% versus the US average of 6.1% as of August 2008. From August 2007 to August 2008, the Washington MSA gained 43,000 jobs, a fairly strong showing as compared to many parts of the country. [Source: CRA]

According to the Greater Washington Initiative, the DC metro area is well set for continued economic prosperity. Forty years ago, the largest employer in the DC area was the federal government, with more than 30% of all jobs. That share has decreased to just over 11% as the service sectors have blossomed. Currently 22.7% of area jobs are in the Professional & Business Services areas, 11% Health and Education, 11.4% Federal Government, 10.2% State and Local Government, and 5.3% in the financial sector. These high-compensation sectors make up over 60% of area jobs. [Source: GWI]

The DC area is highly educated, with over 21% of residents holding an advanced or professional degree. 46% of residents have a bachelor's degree – these figures put Greater Washington above the top ten metropolitan areas in educational attainment.

After many years of price increases in the Washington DC MSA, the past two years have seen declines:

Year	2002	2003	2004	2005	2006	2007	Aug 2008

Home Appreciation	14%	14%	20%	22%	2%	-9%	-17%

[Source: CRA]

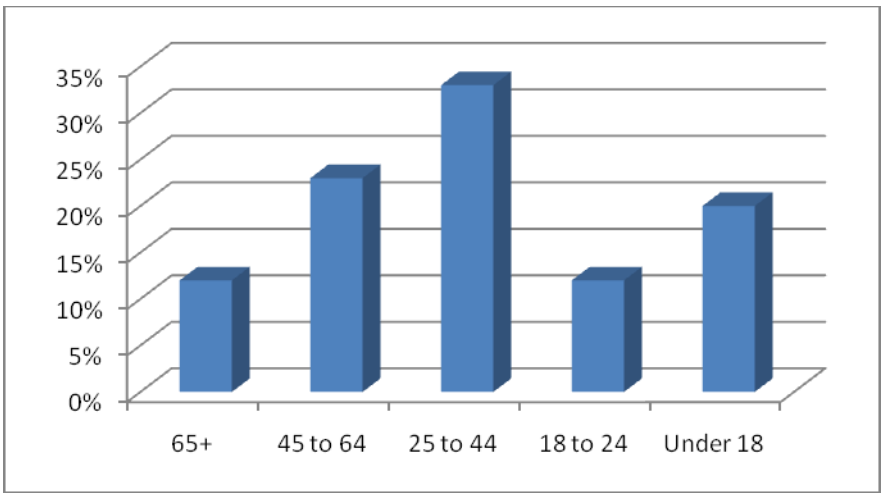
Most of the declines have been in the outer suburbs, while homes closer in have fared better. In Washington DC, for example, the average price of a home increased from the 2nd quarter 2007 to 2nd quarter 2008 from $529,300 to $567,900. The MRIS Washington Market Report for 2nd quarter credited the increase in home values to the labor market and low interest rates. During April and May of 2008, approximately 1,500 payroll jobs were added in the city, which lowered the District unemployment rate from 6.3% to 5.9% for the period.

2.2 District of Columbia Market Analysis

The District of Columbia saw population growth during the past two years, with 250,456 households in 2006 to 251,039 in 2007. Household population grew by 6,679 residents in the same period, to 552,984. The average household size in 2007 was 2.2 per household. Families made up 43% of the households in DC – 22% married couples and 21% other family types. A full 57% of all District households were either people living alone or in households where no one was related. [Source: American Factfinder]

The District if a fairly mobile city, with 10% moving from one DC residence to another within the past year, 9% moving to DC from another part of the country, and 1% moving to DC from abroad. [Source: GWI]

Only 16% of DC residents 25 years of age or older do not have their high school diploma, as compared to 15% nationwide. 20% of residents have a Bachelor's degree, and a full 25% have a graduate or professional degree. The age distribution by age is charted below:



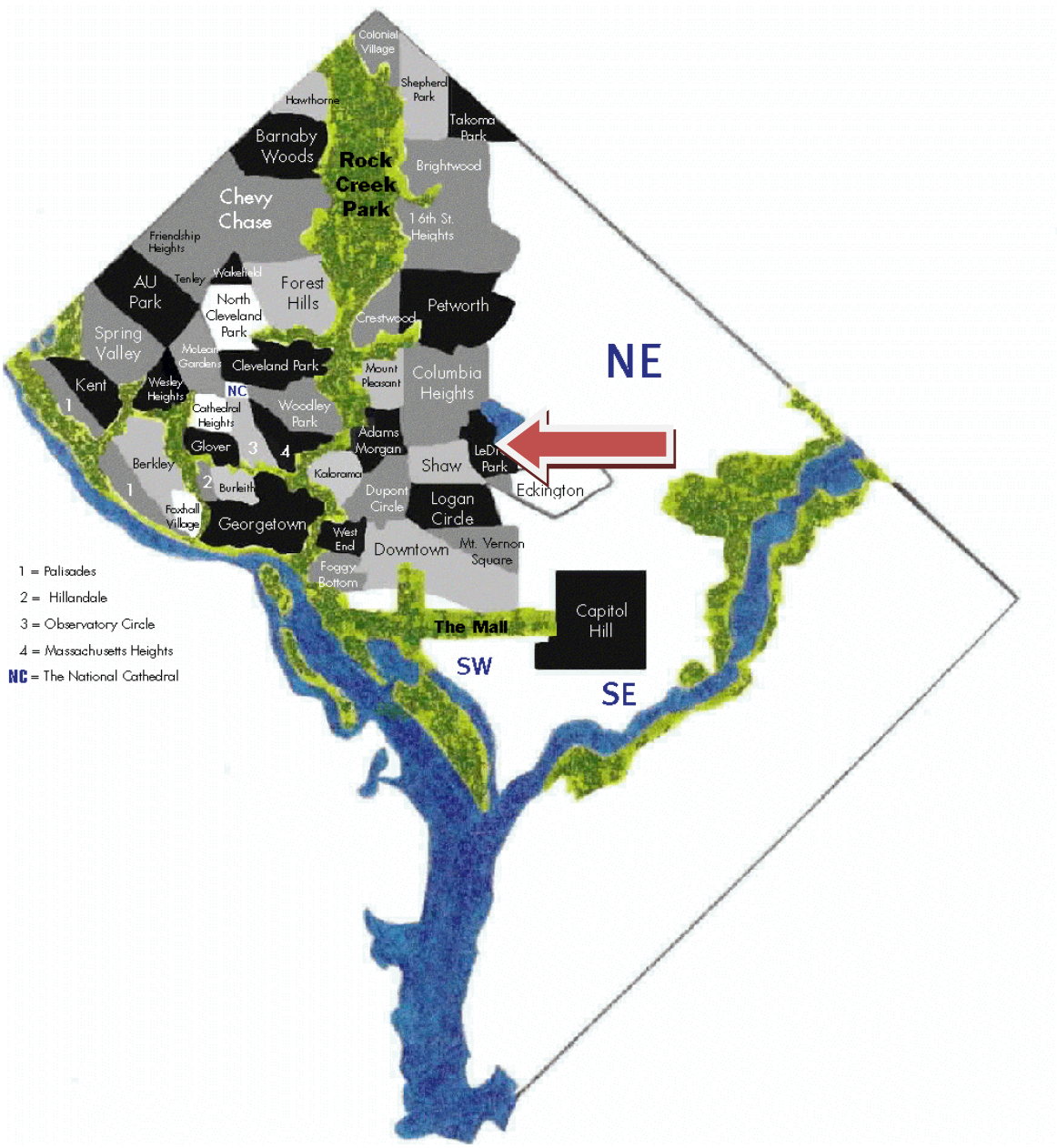
[Source: American Factfinder]

When looking at the age groups most likely to live in a single family home (25 up to 64) a total of 56% of DC residents are in this age range. For people reporting one race alone, 35% was White, 56% was Black or African American, 8% Hispanic, less than 0.5% American Indian, 3% Asian, less than 0.5% native Hawaiian or Pacific Islander, and 5% some other race. (Some Hispanics are included in White)

Housing characteristics in the District lean toward multi-family buildings. 60% of all buildings were multi-family, and 40% are single-unit structures. 46% of all households are own-occupied, while 54% are renter-occupied. The median cost of a mortgaged home was $1,949/month, while the median rental cost was $914/month. [Source: US Census Bureau]

2.3 Columbia Heights - Neighborhood Characteristics

Located in the northwest quadrant of Washington, D.C., Columbia Heights borders the neighborhoods of Shaw, Adams Morgan, Mount Pleasant, Petworth, Park View, Pleasant Plains, and LeDroit Park. To the southeast is Howard University. The streets defining the neighborhood's boundaries are 16th Street to the west; Spring Road to the north; Georgia Avenue to the east; and Florida Avenue and Barry Place to the south. [Source: Washington DC Economic Partnership]



Columbia Heights is an up-and-coming neighborhood which has seen dramatic change in the past ten years. After the 1968 riots, the area deteriorated into a blighted unsafe zone along 14th Street. Many homes and shops remained vacant for decades. City leaders opened a new metro station in 1999, which began the genesis of an economic renewal in the neighborhood. The metro station serves both the yellow and green metro lines.

Three years ago, the Tivoli Theatre was reopened with a 53,000 sf Giant Food grocery, a 250-seat theater, and several other restaurants and shops. The next year,

the Dance Institute of Washington opened a five million dollar modern dance studio across 14th Street from the Tivoli.

Over the past year, the 500,000 sf DC USA project has opened next to the metro, anchored with the first urban Target in the city. Additionally, a Best Buy, Bed Bath & Beyond, Marshalls, and Staples opened at the site, with several more stores to come. A Washington Sports Club takes the top floor, complete with basketball courts and indoor pool. In October, Richmond-based Ellwood Thompson signed a lease to bring an organic grocer to the site.

[Source: Mapquest]

DC USA

On the southeastern border of Columbia Heights is Howard University, which has a student population of over 11,000. Established in 1867, the school also has a teaching hospital, Howard University Hospital

Several residential buildings have recently been built next to the metro, including the Kenyon Square and Highland Park properties, which are condos and apartments, respectively. Just up the street The Allegro is close to completion, another apartment building on 14th Street. Columbia Heights is the densest neighborhood in DC, housing more than 36,000 residents within a half-mile of the metro station. Of this population, over 38% are between 25 and 44 years of age. The following chart provides demographics of the area within ½ mile of the metro station: [Source: Washington DC Economic Partnership]

Population	36,545
Male	51.4%
Female	48.6%
Households	14,360
Average Household Size	2.5
Owner Occupied Households	23.9%
Average Household Income	$55,190
Median Household Income	$37,653
Average consumer Expenditures per Household	$18,900
Median Age	32.7 years

The Columbia Heights metro station is very active, with 15,047 riders on weekdays, and 19,164 on weekends. Additionally, the weekday traffic count has 36,700 vehicles on 16th Street, 21,400 vehicles on 14th Street, both going north/south, and 12,000 cars on Irving Street, and major east/west route.

In summary, the Washington DC metro area is a growing and thriving area, which is seeing job and population growth. While housing markets further out have suffered in the latest economic downturn, properties inside the beltway, and in Washington DC in particular, have held their value. With an affluent and educated population, residents have the income and the want to consider a green home when they are ready to purchase.

2.3 Green Residential Market

While numerous projects in the DC region have become LEED-h certified, most of the focus has been on commercial properties. According to the Leeds for Homes program sponsored by the US Green Building Council, there are no homes in the DC Metropolitan area that have been certified green. However, in neighboring Baltimore, two single-family attached homes were certified at the Silver level. The LEED-h certification checklist is included in the appendix.

The Alta, a 126-unit condo building in downtown DC, was Leed certified before the home certification became available. The project included energy star appliances, LEED commission of high efficiency mechanical systems, a green roof, and low VOC paints, carpets, and adhesives. They also got credit for being near

metro, and having Zipcars available onsite. This is the only residential property certified by LEED in the metro area.

Another green project located in DC, in the heart of Columbia Heights, is the Capital Solar Condos. Located two blocks from the Columbia Heights metro station, this project has three condos in a converted rowhouse, two 2-bedroom and a 3-bedroom units on two levels. While not certified, green features include an array of solar panels on the roof, energy-star appliances, tankless hot water heaters, and dual-flush toilets. To date, none of these condos have sold. In doing my research, I toured all three condos, and the utilization of space is a bit awkward, which has most likely affected unit sales.

3. Energy Saving Analysis

3.1 Insulation & Windows

In order to reduce the amount of air leaking into the home, we will utilize Icynene insulation on all exterior walls of the house, leaving the interior duplex common wall as is. Icynene is a low-density soft foam insulation, which is sprayed into walls, crawlspaces, underside of roofs, attics and ceilings. Sprayed as a liquid, it expands to 100 times its volume in seconds to create a superior insulation and air barrier. Every crevice, crack, electrical box, duct and exterior penetration is sealed to reduce random air leakage. Icynene adheres to the construction material and remains flexible so that the integrity of the building envelope seal remains intact over time.

Iceynene is water-blown, and does not emit harmful gases once cured. Icynene contains no ozone-depleting substances and does not off-gas over time, unlike some conventional insulation that can deteriorate as time passes. Icynene maintains its efficiency with no loss of R-value.

By providing an air-tight around the home, energy consumption for homes insulated with Icynene can achieve a 50% reduction. Additionally, HVAC systems are able to be right-sized, again allowing for a smaller system and additional energy savings. [Source: Icynene]

In order to install the Icynene, the plaster on the exterior walls will be removed during demolition, and 2.5" wood framing will be built out to provide room for insulation. Before the home is insulated, the contractor will finalize electric and digital wiring, as well as updated plumbing.

Additional savings can be recognized by selecting the proper windows. The current windows are single-pane double-hung windows, which are not very efficient. They will be replaced with energy-efficient casement windows.

Casement windows are hinged at the sides. Hinged windows such as casements generally have lower air leakage rates than sliding windows from the same manufacturer because the sash closes by pressing against the frame. Casement windows project outward, providing significantly better ventilation than sliders of equal size. Because the sash protrudes from the plane of the wall, it can be controlled to catch passing breezes

Windows on the front side of the house, facing north, and the side of the house will be double-paned glazed with moderate solar gain low-e glass, which allows 78% of visible light to pass through the glass, and 58% of solar heat gain. The windows in the back of the house, which face due south, will be double-paned glazed with high solar gain low-e windows, which allow 75% of visible light to pass through, and 71% of solar heat gain. Exterior shades will be built in the back of the home to reduce heat gain during the summer.

In contrast, a traditional non-glazed single pane window allows 90% of light to be transmitted, as well as 86% of solar heat gain. The saving can be considerable - an average 2,000 sf home in Boston can realize a 32% decrease in heating and cooling by improving their windows from single-pane double-hung to high-efficiency windows. [Source: Efficient Windows Collaborative]

3.2 Heating and Cooling Systems

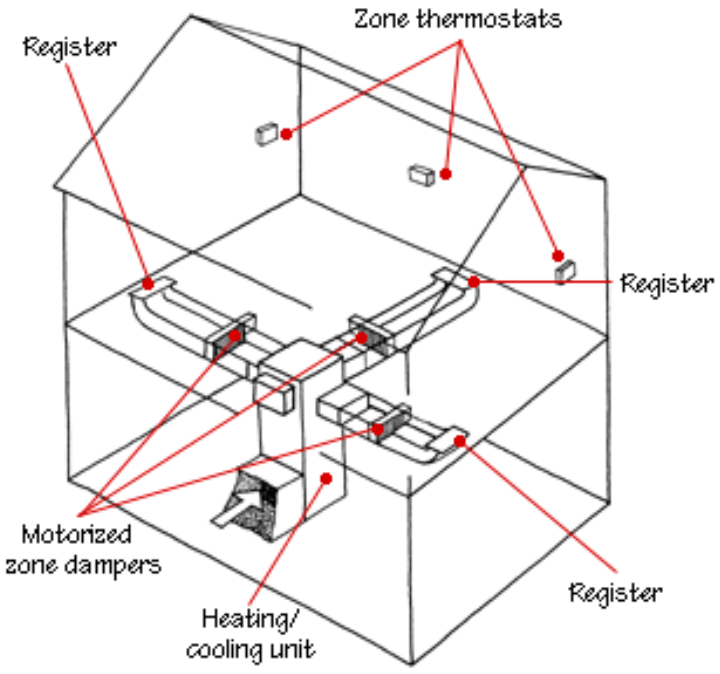
Some of the biggest decisions about heating and cooling a home are the type of system (furnace, radiant versus blow heat, heat pump) and selecting the system size. For this project, a high efficiency heat pump will provide both heating and cooling, with gas heating on very cold days. Since the system runs off electricity most of the year, it will take advantage of the energy produced by the solar panels on the roof.

For cooling, one of the biggest mistakes many homeowners make is selecting a system that is too large. The system will continually cycle on and off, providing blasts of very frigid air to get the temperature to the desired setting very quickly, cycling off, and back on once the temperature rises. The problem is that the system is not running long enough to remove adequate humidity from the air. Rooms are

much more comfortable with lower humidity, so the thermostat will need to be lowered to reach the same level of comfort.

A properly sized unit runs fairly consistently, constantly removing humidity from the air, and will use less energy in the long run. The more efficient systems have two-speed compressors, which allow the heat pump to operate at a higher or lower level based on its current heating or cooling task, saving electrical energy and wear and tear on the system. They can also include dual-speed or variable-speed motors, which adjust the rate at which air is circulated throughout. This helps eliminate hot and cold spots, and can be quieter because the fan is not always running at the highest setting.

For this project, we will install a zoned 2.5-ton heat pump with a two-speed compressor, a variable-speed fan motor, and Puron refrigerant for heating and cooling, coupled with a gas heater for cold winter days when the heat pump cannot properly operate. Most heat pumps will only operate down to 30 degrees, and below that temperature additional heating is needed. Utilizing motorized zone dampers, the system will include three zones, one for the in-law suite, and one zone for each floor of the main house. This will allow the resident in the in-law suite to select their own heating and cooling temperature, as well as raising or lowering the temperature in the main living area at night in order to conserve energy. (Source: Home Tips Website)



Currently, the minimum Seasonal Energy Efficient Ratio (SEER) for heat pumps is a rating of 13. Systems are now on the market up to a rating of 18, using two-speed compressors to optimize efficiency. The most expensive part of heating and cooling a home is not the purchase and installation of a system, but the annual expense in using the system. Although the premium of a 18 system versus a 13 system can be as much as 50%, the annual savings can more than make up for the initial investment. Also, with heating and cooling being the largest energy user in a home, a higher SEER rating will have a larger impact on reducing the carbon imprint. For this project, we will select a SEER 18 unit.

Currently most home air conditions and heat pumps utilize a refrigerant known as R-22, which is known to deplete the ozone layer. Puron refrigerant is being phased in, based on the US ratification of the 1987 Montreal Protocol and instituted by the Clean Air Act Amendments of 1990. Puron refrigerant is safe, non-toxic, non-flammable and environmentally responsible. It does not deplete stratospheric ozone, and has been shown to have one of the lowest overall impacts on global warming of all viable R-22 replacement refrigerants.

3.3 Hot Water Systems

Most homes in the US heat their hot water using a hot water tank to continuously heat and store hot water. Energy is utilized throughout the day to keep the water at the desired temperature, even though no one is home. Also, hot water tanks can take up considerable space. Tankless systems heat water only when it is needed, and take up little space in comparison.

Hot water will be supplied by two tankless gas hot water systems – one for the in-law suite in the basement, and one for the rest of the house. Tankless systems can save approximately 30% - 50% as compared to a traditional hot water heater. Seeing that hot water can be responsible for up to 20% a home's energy consumption, switching to a tankless system can save hundreds of dollars a year, further reducing a home's carbon footprint.

In order to minimize the amount of hot water needing to be produced, low-flow shower heads and kitchen faucets will be utilized throughout the home. Additionally, the dishwasher will have its own booster heater to increase the temperature from 120 degrees to 140 degrees, further reducing the amount of energy needed to heat the water.

3.4 Solar Photovoltaic System

Wikipedia defines solar energy as "energy from the sun in the form of heat and light." There are two types of solar panels, photovoltaic and hot water panels. In deciding which type of system to invest in, several factors are considered – climate and payback time.

Solar electric panels tend to have a longer payback time; however, they last longer than solar hot water panels. Solar electric panels have been known to continue working for 40 years with less than a 20% drop in energy production. Payback time is 8 to 20 years, so you will have many years of "free" energy once the system pays for itself. Excess power generated through the panels can be sold back to the grid.

Solar hot water is best if you live in a hot and sunny climate, where it can break even in 3 – 8 years, and supply 70% of winter hot water needs and 90% of summer hot water needs. However, they only last between 10 and 15 years. Excess hot water generated cannot be sold, and is essentially wasted solar energy.

Due to the long life of the photovoltaic system, I have decided to install a 2.5 kw system on the roof that is tied to the grid. A system can be built with back-up batteries to store electricity in case a home loses power; however, seeing that DC's electric lines are underground, and that power is rarely lost in the city, it is not a good investment. A system without batteries that sells power back to the grid requires a special meter that spins backwards when more power is being produced that utilized. Due to commercial activity, peak electricity consumption is often during the middle of the day, when offices, stores, and restaurants need lights, air conditioning, and office equipment. That is typically when the average home is using less energy while the homeowners are away, lights are shut off, and the heat or a/c is turned to a more efficient setting. In fact, if enough homes had solar power systems that could sell power to the grid during peak usage hours, everyone's electricity price could go down as the electric company would not have to utilize their most expensive power sources.

A grid-tied solar panel system has four components. First are the solar panels, which come in a variety of shapes and sizes to match your needs. The panels produce DC power, while most home appliances run on AC electricity. Secondly, an inverter converts the solar generated DC power into AC power, but in the process loses about 6% of the power generated. Third, breakers are also needed to stop the

flow of power into the grid in case of a power outage, for the safety of maintenance workers. And finally, a meter box that will run both forwards and backwards also needs to be installed. This allows power during the peak production periods of 10 am to 3 pm to be sold back to the electric company.

Sizing the system is another important decision. The larger the solar array, the more energy return on investment for the system, since the other three components are a fixed cost. Therefore, it makes sense to maximize the number of solar panels that can be positioned toward the south for maximum efficiency.

That being said, solar power is still a fairly expensive way to generate electricity, and has to be considered in the value of your home. Certain variables are unknown – for example how much a kwh of power will cost in 10 years, 20 years, or 40 years. As power prices increase, the time to pay off the initial investment decreases. Once you have recouped the original investment, the power generated by the solar system is essentially free.

Based on a discussion with a local solar power installer, and with two Columbia Heights residents who have installed systems on their rowhomes, a 2.5 kw grid-tied system should cost approximately $22,500. Part of this amount will be offset by government credits and grants.

3.5 Passive Solar Heating and Cooling

The property will utilize a solar shading system on the south side of the property to prevent heat gain in the summer. During the summer months, most light will be blocked from entering the windows below, saving on cooling costs.

During the winter, light will be able to penetrate the southern windows, which will raise the temperature considerably. To maximize the heat gain, the kitchen will have dark heat-absorbent floors and countertops, which will hold the heat during the day and release it in the evening as the temperature drops.

3.6 Energy Efficient Appliances

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy whose stated goal is to save money and protect the environment through energy efficient products and practices. They rate various household appliances, and those that meet the standard of reducing energy consumption are granted ENERGYSTAR status.

In most households, the refrigerator is the biggest energy consuming kitchen appliance. Replacing a conventional 2001 model with an ENERGYSTAR product can save 40% in energy consumption. Furthermore, ENERGYSTAR models save more than 20% in energy consumption as compared to current conventional models. Other appliances that save both energy and water are ENERGYSTAR dishwashers and clothes washers.

3.7 Lighting

Fluorescent lighting will be utilized throughout the house. Fluorescents utilize 1/4 the amount of energy as traditional incandescent lighting, and each bulb can last for seven years of regular use. They come in a wide variety of styles.

Additionally, LED lighting will be utilized under kitchen cabinets for task lighting. LED lights utilize 1/30th the amount of energy or incandescent lighting, and can last up to ten times as long as compact fluorescent bulbs. Additionally, LED lights have no mercury, a drawback of fluorescent lighting. [Source: LED Light Company]

3.8 Recycled Materials & Flooring

In order to save on the project's carbon footprint, we will utilize existing materials when practical, and try to use recycled materials when we need to purchase materials. Unfortunately, the existing hardwood floors are in fairly poor shape, with water damage on the second floor and the boards on the first floor have developed spaces between them. The current boards will be covered with green bamboo flooring.

Countertops and tiles for the kitchen and bathrooms will have high recyclable content. One product in consideration is VitraStone, a blend of ceramic cement, fly ash, and recycled glass. VitroStone is made up of approximately 75% recycled materials. Although these products typically cost more than granite, many people feel it is important to utilize already existing materials than extracting raw materials from the ground.

The "lumber" to replace the back deck will be recycled plastic lumber. Compared to wood, plastic lumber is low maintenance, does not rot, delaminate or become infested and eventually is itself recyclable. It uses plastics that each of us place in our home recycle bin, and saves on the cutting down of trees.

3.9 Low VOC Carpeting, Paints, and Adhesives

According to the EPA, studies have found levels of about a dozen common organic pollutants to be 2 to 5 times higher inside homes than outside, regardless of whether the homes were located in rural or highly industrial areas. The EPA goes on to say the some of the health effects include; eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system, to name a few. [Source: EPA]

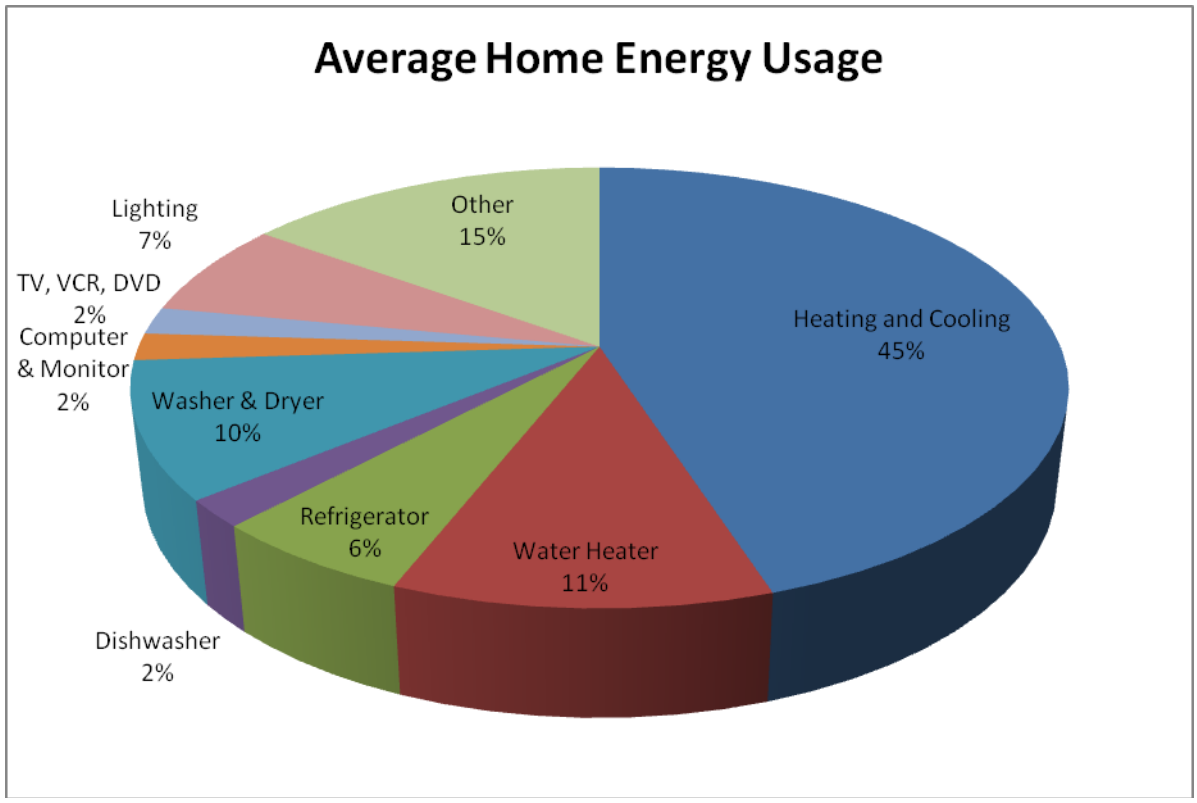
Fortunately, there are many ways to minimize the levels of VOC (Volatile Organic Compounds) in the property. Carpets used in the basement and in the smaller bedrooms will made of natural fibers, such as wool, hemp, cotton, or camel's hair. They will not be treated with mothproofing, water-stain protectors, synthetic backings, underlays and adhesives, which can off-gas VOCs. Low-VOC adhesives are

available on the market to glue the carpet to the ground. Other methods of reducing the amount of VOC are to use low- or no-VOC paints and adhesives. Kitchen and bathroom cabinets constructed out of particle board, which contains formaldehyde, can release VOCs for the life of the cabinets.

Many cabinet makers now offer low-VOC cabinets, using materials and adhesives that do not off-gas VOCs. Instead of using hardwoods, several companies offer bamboo cabinets, which can be grown and harvested in as little as two to three years, versus many decades for traditional hardwoods.

3.10 Estimated Energy Savings

The average American home utilized 10,000 kwh of electricity per year, as well as 81,200 cubic feet of natural gas. The chart below shows how the typical home utilizes energy: [Source: Energystar]



To improve the energy efficiency of the home, we will chip away at as many categories as possible to reduce energy usage.

Heating and Cooling: with the Icynene insulation, new windows, controlling passive heat gain on the South side of the house during summer and capturing the heat in the winter, and utilizing an 18 SEER heat pump system, it is expected that we can reduce this category by over 50%. In fact, the manufacturer of Icynene states that many homes see a 50% reduction in heating and cooling from the insulation alone. To be conservative, we will estimate a 45% reduction in energy usage in this category.

Water Heater: it is estimated that tankless technology can reduce energy consumption by 24% by 34%. (US Department of Energy, Energy Efficiency and Renewable Energy Web Site) We will utilize 25% for our estimated energy reduction.

Washer: an energy star washer can save 31% as compared to other models.

Refrigerator: Energy star frigs utilize 20% less energy than non-rated refrigerators built under current standards, and 40% more efficient than units built prior to 2001. We will use 20% for our estimated energy reduction.

Lighting: Energy star qualified lighting provides bright, warm light but uses about 75% less energy than standard lighting, produce 75 percent less heat, and lasts up to 10 times longer. Below is a summary of the energy savings of different systems:

	Average Home Usage	Expected Energy Savings	Net Savings
Heating & Cooling	45%	45%	20%
Water Heater	11%	25%	3%
Washer	10%	31%	3%
Refrigerator	6%	20%	1%
Lighting	7%	75%	5%
Total Savings			32.5%

Being conservative, the energy savings described above would cut 32.5% off the energy usage, and cost, of the home. That goes a long way toward the stated goal of reducing energy use by at least 50%. To reach the 50% goal, we look to the solar panels on the roof.

The average 2,000 sf US home uses approximately 10,000 kwh of electricity per year. The 2.5 kw system we will place on the roof will generate approximately 3,080 kwh per year, or 30% of the home's usage. (Solar Savings Analysis in appendix)

When combining the energy savings with the generating capacity, we have reduced an average home's energy usage by 62.5% - surpassing our goal of at least 50%. Assuming the average cost per kwh in DC is $0.1042, the energy efficiencies save $339/year. The solar power system saves $321/year, for total savings of $660/year.

All the homes on Gresham Street are identical duplexes built around 1910. In order to figure out approximate energy usage for the subject, I spoke to several neighbors about their energy bills. Based on these discussions, the average energy bill for these homes is approximately $210/month, or $2,520/year. Applying the estimated energy savings, the efficiencies in this home could save as $819/year. When adding in the solar power system, total savings are $1,140/year.

LEEDS for Homes is a voluntary initiative to promote green sustainable practices within the building industry. They have provided a checklist to assess the sustainability of each project. (Included in appendix) Based on the checklist, the subject property would achieve at minimum a Silver LEEDS-h rating.

4. Construction Analysis

4.1 Construction Budget Analysis

John Kolo, principal of Kolo Development, met me at the property to bid on the work and put together a construction budget. (see appendix) The construction budget, including labor and materials, totaled $149,750. When adding 20% contractor profit and $15,000 for the solar system, net of the REDP funding, the total construction budget is $194,700. This dollar amount is in line with other bids I have seen for gut-rehab single-family projects located in the city.

The budget item for Secure Property covers boarding up windows, temporary fence rental, and changing locks, if necessary. Plans, Permits, Expeditor cover the cost to file for permits, and hire an expeditor to manage the permitting process. Foundation/Basement is to have an engineer look at the foundation, and if necessary, make repairs, although none are expected to be needed. Pest Control is set aside for any termite damage found on the property.

Temporary Requirements includes rental of port-a-johns and dumpsters for demolition. Plumbing and Electric Pre-demo is the charge to have the utilities come out and cap off access during demo. The demo work includes removing plaster, interior walls, windows, and existing roof for replacement.

Rough Plumbing is to run new pipe to current and new bathroom and kitchen sites. Framing and Subfloor is to repair any flooring, as well as frame the interior so insulation can be added to the home. Roof decking is to replace any rotted out boards while replacing the roof. All exterior doors and windows will be replaced. Exterior Trim includes replacing damaged wood on the front porch, as well as other external components.

Roof replacement, HVAC, and Tankless Hot Water Heaters budget line items will replace or install these features. Rough electric will install all wiring for outlets, fixtures, telephone, cable, etc in the walls. Although the brick has held up over time, we have budgeted for minor repair to the exterior brick. Insulation will be blown-in Icynene, and drywall will replace the existing plaster walls on exterior walls.

Cabinetry and Hardware are for the kitchen, bathrooms, and closets. Although the interior doors are good quality wood doors, we have budgeted to have them stripped and re-stained. Pre-painting Cleanup and Interior Paint will utilize low-VOC paints and cleaners. Kitchen countertops and tile for the kitchen and bathroom will use recycled materials. Final Plumbing and Final Electric will install the light fixtures, sinks, commodes, and showers.

Bamboo flooring will be installed over the existing oak floors, which are not in salvageable condition. Lockout will cover new exterior doorknob and deadbolt combo, door stops, and trimming interior doors to accommodate new carpet or tile. Appliances, mirrors, and shower doors will be the last items installed. Adding professional landscaping and a good final cleaning will have the home ready to go on the market.

Two other items include re-pouring the front concrete steps, which are uneven and in bad repair, as well as replacing the back deck, which is rotting out, with recycled plastic lumber.

The big-ticket items in the construction budget include 10.5% of the budget for framing, 5.3% each for demo, HVAC system, and kitchen and bathroom tile work, , and 5% for bamboo floors.

4.2 Soft Cost Analysis

The soft costs of the project make up a significant portion of the overall budget – almost 10% of the budget. Soft costs are outlined below:

- Legal – costs to set up the project-specific LLC, review loan docs, etc.
- Closing Costs – Miscellaneous closing costs not outlined below
- Appraisal – cost to perform an as-is an as-completed appraisal
- Finance Costs – cost to carry the project for 9 months of construction and 3 months to market and sell the property at a 7.5% interest rate.
- Real Estate Taxes – 2008 District real estate taxes for the property are $1,073.28.
- Title Insurance – based on lender's and owner's policy
- Contingency – approximately 10% of the construction budget for unseen scenarios.
- Loan Fee – 1% of the loan amount

5. Comparative Sales Analysis

5.1 Recent Comparable Sales

Using the multiple listing service, I looked at all three-bedroom row homes in the Columbia Heights market. I narrowed the list of 48 properties that were either active in the market or had sold in the past 180 days to the ten best comparables.

I made further adjustments based on location, finished basement, curb appeal and condition, off-street parking, and time-on-market. Even after the adjustments, the range was rather wide - $420,000 to $700,000. After removing the high and low outliers, the range narrowed from $445,000 to $604,000.

The best comp, which needed no adjustments, was Comp #6, which sold for $545,000. When looking at comps, excluding the top and bottom outliers, the average was $532,000. For purposes of calculating an expected rate of return, I will utilize $540,000. This does not include any adjustments for the green benefits, which will be added later in this analysis. See the chart on the next page to review the comps, and adjustments made to each. [Source: MRIS]

Comp	1	2	3	4	5	6	7	8
Address	3481 Holmead	779 Harvard	2526 13th	1227 Radolph	744 Columbia	744 Harvard	431 Manor	746 Harvard
Status	Sold	Sold	Sold	Sold	Active	Sold	Sold	Active
Price	**$ 634,000**	**$ 380,000**	**$ 535,440**	**$ 562,700**	**$ 439,898**	**$ 545,000**	**$ 482,575**	**$ 529,900**
Adjstments								
Location	$ 10,000	$ -	$ (10,000)	$ -	$ -	$ -	$ 20,000	$ -
Inlaw Suite	$ 10,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ -	$ 15,000	$ -
Parking	$ (50,000)	$ -	$ -	$ (50,000)	$ -	$ -	$ (25,000)	$ -
Time on Marke	$ -	$ 15,000	$ -	$ -	$ 5,000	$ -	$ -	$ -
Curb Appeal	$ -	$ 10,000	$ -	$ -	$ 20,000	$ -	$ -	$ 20,000
Adjusted Price	**$ 604,000**	**$ 445,000**	**$ 565,440**	**$ 552,700**	**$ 504,898**	**$ 545,000**	**$ 492,575**	**$ 549,900**
Average Price		**$ 532,439**						

5.2 Recent Green Sales

The only information on green residential sales in the DC area is from MRIS data on The Alta. I compared one-bedroom one-bath units in the Alta with others that sold within a five block radius during the same period of time, December of 2006 to June of 2007. The database reports 12 one-bedroom units in The Alta that sold for an average price of $418,667; while 66 other one-bedroom properties within a five-block radius average $353,849. That is an 18.3% differential between close-by one-bedroom condos and units in The Alta.

Of course, no direct correlation can be made from the data pointing that the green features are what created a higher sales price for the units. However, I attended a “green open house” event at the Alta, and many people showed up and were keenly interested in the green features. If nothing else, the LEED certification most likely brought more interested buyers to the property.

According to the U.S. Department of Housing and Urban Development, home values rise an average of $20 for every $1 reduction in annual utility bills. Based on the anticipated annual savings of $1,140/year, this formula would indicate an increase in the home’s value of $22,800.

Another methodology in valuing the home value increase associated with energy savings would be to apply a capitalization rate. If an investment property were to save $1,140/year in operating expenses, the NOI would increase by that amount. Applying an 8% cap rate would generate additional value of $14,250. For the purpose of this analysis, when comparing the $22,800 increase from the HUD guideline with the cap rate approach, we will utilize the more conservative figure of $14,250.

5.3 Market Sales Conclusion

Based on the comparable property analysis which valued the property, assuming it was in livable condition, at $540,000, and adding a "green premium" of $14,250, the desired sales price of the property should be $554,250, rounded down to **$554,000**. The "green premium" of $14,250 represents only 2.5% of the value of the home. The $554,000 desired price is supported by several of the three-bedroom comps – in fact, several properties sold for over $600,000.

In order to achieve the desired price at settlement, the asking pricing will be set above the desired price. In the Columbia Heights market, there is a 3.8% differential between asking price and settlement price. Due to the heavy interest expected for a green home, we will assume only half of that differential, or 1.4%. Therefore, the asking price of the home will be set at $561,756, rounded up to $562,000.

6. Analysis and Conclusion

6.1 Green Government Programs

Washington DC launched its Renewable Energy Demonstration Project in 2005 in order to provide an incentive for homeowners, developers, and businesses to implement projects that reliably produce electricity using renewable sources of fuel, such as photovoltaic, biomass, wind, or hydropower. The last round of funding was in 2008, and the program paid out $150,000 for projects.

According to Emil King, the project's director, the program will be expanded in 2009 to include geothermal projects, as well as solar hot water. The previous program rewarded $3.00 per watt up to 3 kw, capped at $9,000. The new program has a tiered structure, paying $3.00 per watt up to 3,000 watts, $2.00 per watt for the next 7,000 watts, and $1.00 per watt for the next 10,000 watts.

Based on the planned 2.5 kw solar system to be installed at the subject, we expect to be able to recoup $7,500 from the REDP. That will go a long way in improving the payback period for the initial investment, will lower the construction budget by that amount, and will increase our investors' return on equity.

6.2 Estimated Return Analysis

In establishing minimum return requirements, I turned to several resources on rehabilitation projects. The general guidelines for expected return was 10% unleveraged return for a rehab with light cosmetic work needed, 15% for a property that needs moderate rehab, and 20% for a gut rehab job. Seeing that the subject is a gut rehab, I established 20% unleveraged return as my target.

In speaking to the general contractor, he determined that the property could be finished within six months of permits being pulled. Utilizing an expeditor, we would expect to have permits within a couple weeks after acquisition. Marketing will begin as the project nears completion, and we would expect to have settled within three months of project completion, indicated a 9-month turnaround. However, in order to be conservative in our estimate, we will utilize a 12-month turnaround to calculate expected returns.

In Gresham Place Investment Property Scenario #1 in the appendix, the most-likely scenario is laid out. The current asking price for the property is $250,000, and the property has been on the market for approximately 60 days. Typically within 90 days, if a property has not had any activity, the listing agent is able to convince the seller that it is priced too high, and the asking price is reduced. Based on my own experience as a Realtor in the Columbia Heights market, and in discussion with the general contractor, this property would be properly priced south of $200,000. In a likely scenario, I would offer $180,000 for the property, and negotiate a final price of $195,000.

When adding hard and soft costs to the acquisition, the total budget is $436,600, not including the transfer tax at settlement of $8,120 and real estate commission of $28,000. The net sales price after transfer tax and commissions is $518,267, assuming a $554,000 selling price. After paying back the $329,780 loan, and returning $106,820 in equity, the profit is $81,667.

To calculate the unleveraged return, I removed the finance charge and loan fee from the total budget to show how much the project would cost in an all-cash

scenario. Utilizing $413,300 for the present value, $518,267 for the future value, and a one-year time frame, the unleveraged return is 25.4%, exceeding my 20% threshold. In order to calculate the leveraged return, I utilized the equity of $106,820 for the present value, $188,487 net cash after settlement for the future value, and a one-year time frame. The leveraged return on equity is 76.5%, and if the project was completed and sold in 9 months, the return on equity increases to 113%.

Sales Price	**$ 554,000**			
Budgets	**Project**			
Acquisition	$ 195,000			
Legal	$ 1,000			
Closing Costs	$ 3,500	**Unleveraged Return:**		**25.4%**
Appraisal	$ 500		**Equity:**	**$ 106,820**
Finance Costs	$ 20,000	**Return on Equity:**		**76.5%**
RE Tax	$ 1,100			
Insurance	$ 1,000			
Title Insurance	$ 1,500			
Contingency	$ 15,000			
Loan Fee	$ 3,300			
Construction	$ 194,700			
Total	**$ 436,600.00**			
Transfer Expenses	$ 35,733			
Net Income	**$ 81,667.00**			

In a worst-case scenario where the property did not sell quickly, I calculated the expected rents and expenses for the property. Based on rental comps for a four-bedroom house (including in-law suite) in Columbia Heights, the rents ranged from $3,500 to $3,900 a month. I selected $3,700 for the rental analysis. Assuming an 80% LTV mortgage on the property, and expenses for real estate taxes, insurance, and maintenance, the property would have a before-tax positive cash flow of $4,473. The LLC could rent the property out until the markets recovered; however, there would be a cost to re-position the property to put it back on the market.

Scenario #2 in the appendix shows the project with a 20% unleveraged return in order to figure out the maximum amount that can be paid for the property to make the threshold, which is $213,500. By paying that amount, the LTV of the

construction loan remains under 65%, we receive a 20% unleveraged return, and a leveraged return on equity of 56.2%.

Scenario #3 in the appendix shows the financial results if the full $250,000 asking price were paid for the subject. The project no longer looks attractive, with a LTV of 66.5%, exceeding what the bank is willing to provide. Additionally, the unleveraged return is 10.7%, not meeting the risk-return requirement of a gut-rehab project. The leveraged return is 21.6% - barely over our goal of 20% for the unleveraged return.

6.3 Conclusion

When evaluating a green residential rehab, many factors must be considered. 722 Gresham Place is a strong candidate for acquisition by GreenDoor to acquire, based on:

- Desirable Columbia Heights location, walkable to amenities and near major transportation hubs and job centers.
- The demographics in the Washington region, and the District, remain strong for infill properties.
- The property can achieve the stated goal of being at least 50% more efficient than other similar properties. It is expected that the subject can achieve 62.5% in energy savings, utilizing conservative estimates of savings.
- Based on the most-likely acquisition price of $195,000, the subject exceeds the 20% unleveraged return threshold by 6.8%. Negotiating the purchase price is key to making the project successful. The break-even acquisition amount is $213,500, and it is possible to settle at a slightly higher price, seeing the generous contingency budget item and conservative time estimate for completion. That being said, the seller would have to come down considerably from their current $250,000 asking price to proceed with the acquisition.

Therefore, GreenDoor proposes to make an offer on 722 Gresham Place in the amount of $180,000, allowing for negotiation to as high as around $220,000.

Appendix

Site Photos

Front of Property

Boarded Up Windows into Basement

Side Porch

Living Room

Long Hallway towards Front Door

Dining Room

Kitchen

Refrigerator in Pantry

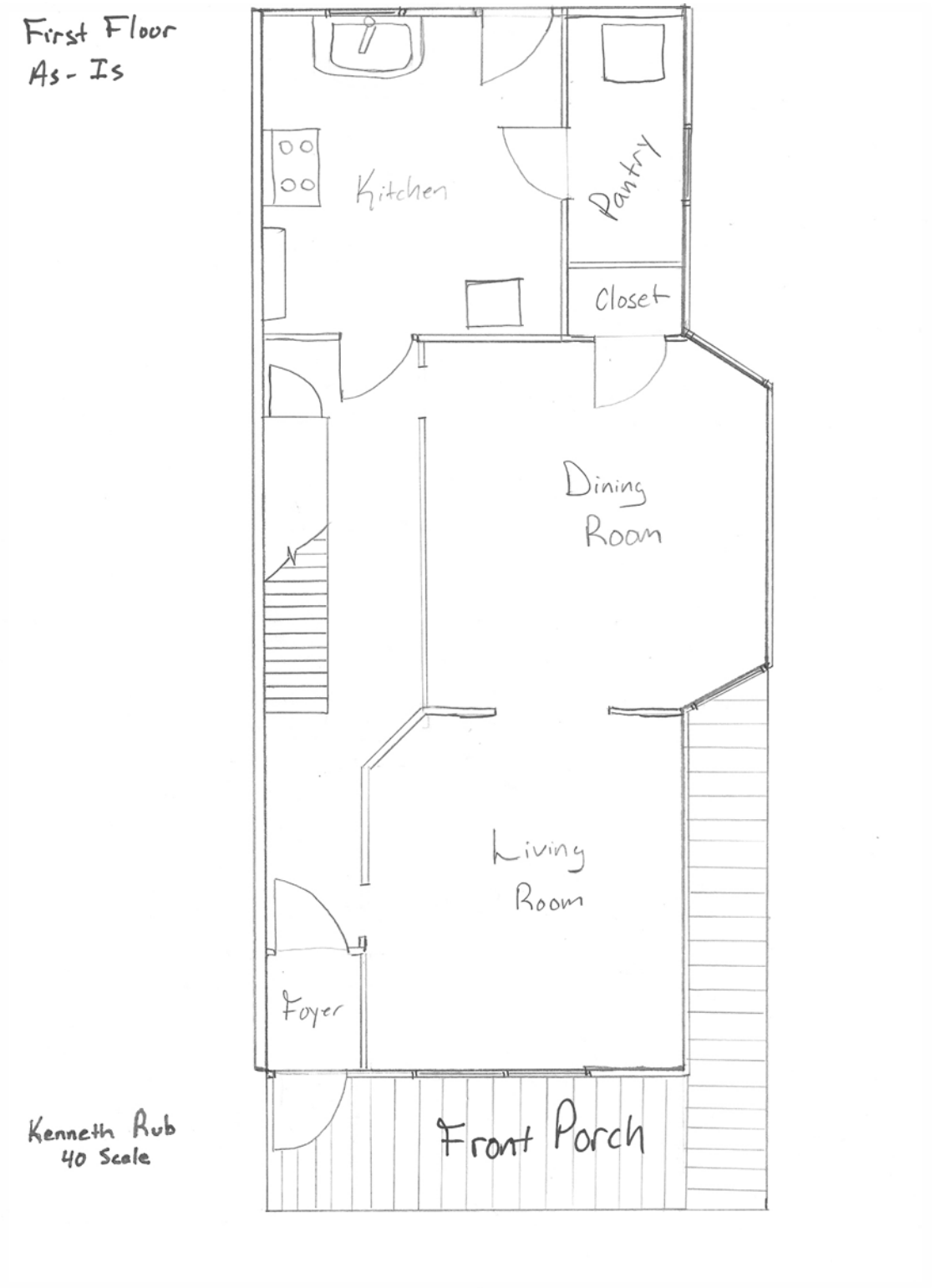
Bathroom

Back Bedroom

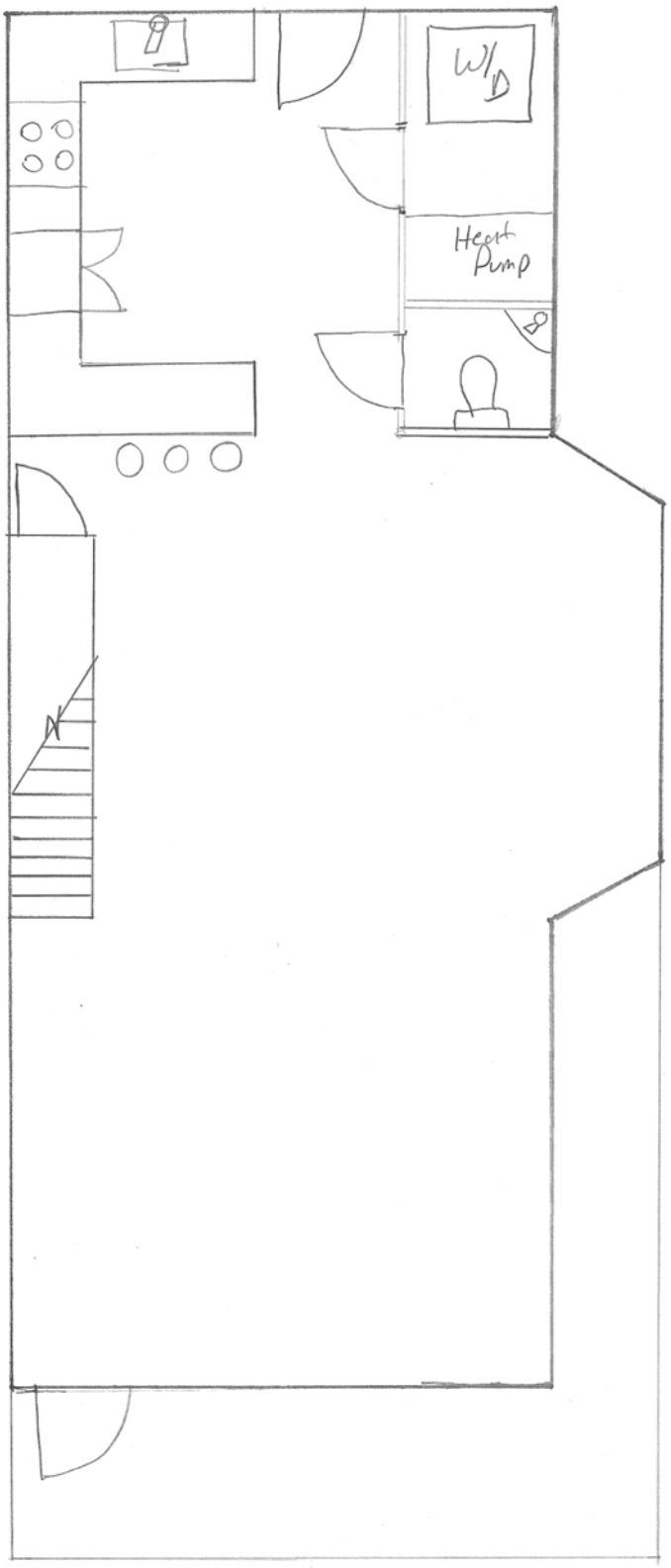
Middle Bedroom

Master Bedroom

Schematic Floor Plans

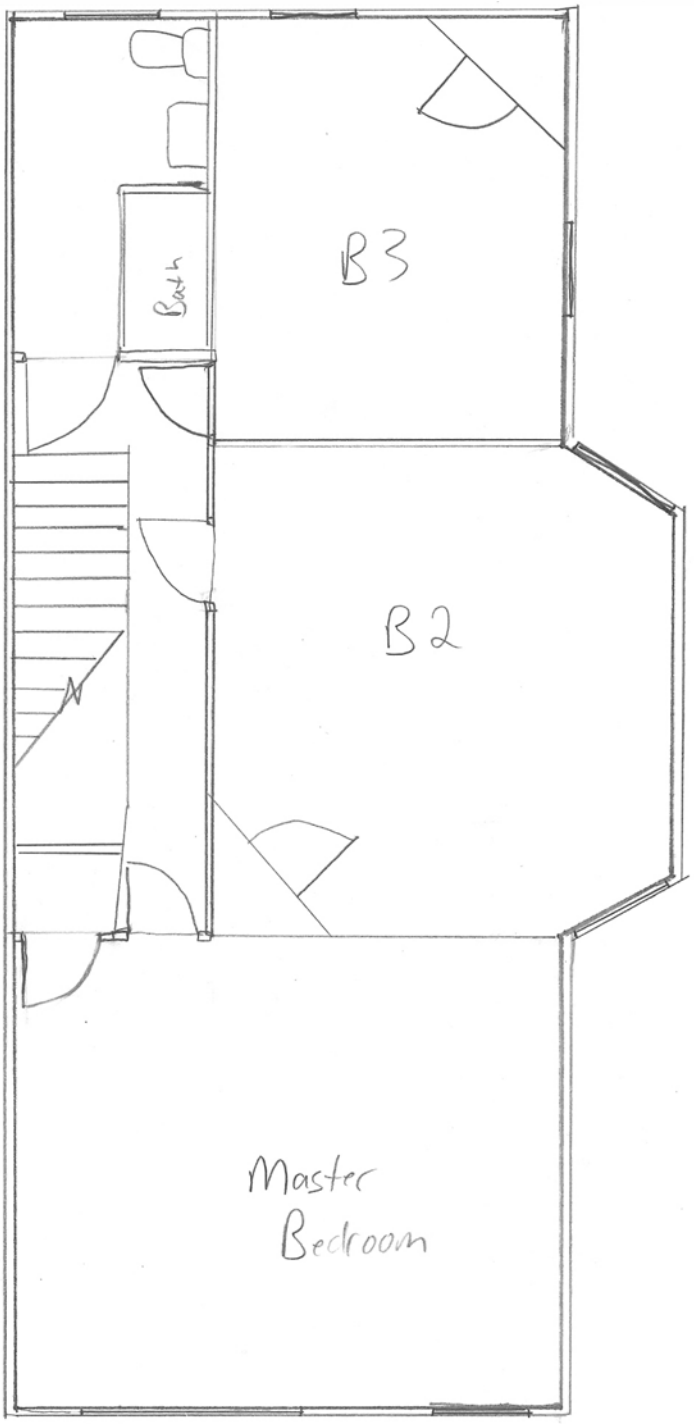


First Floor
Renovated



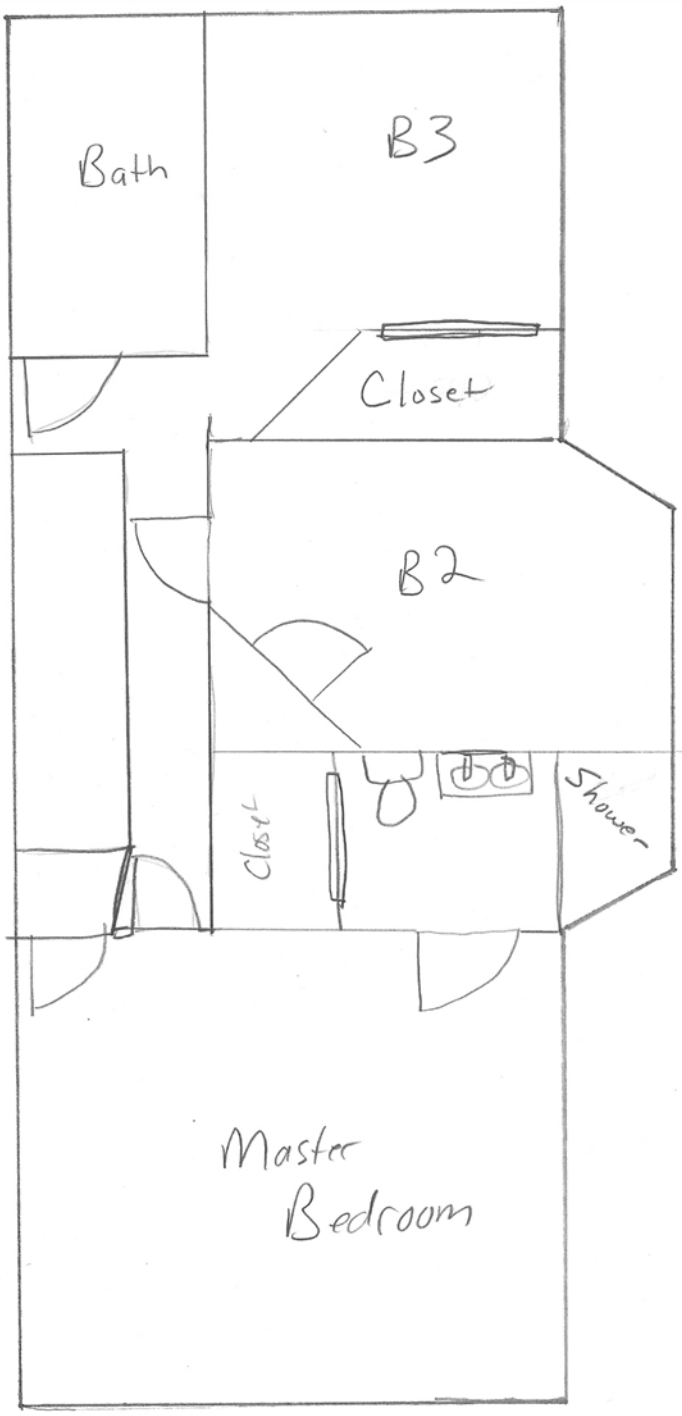
Kenneth Rub
40 Scale

Second Floor
As-Is



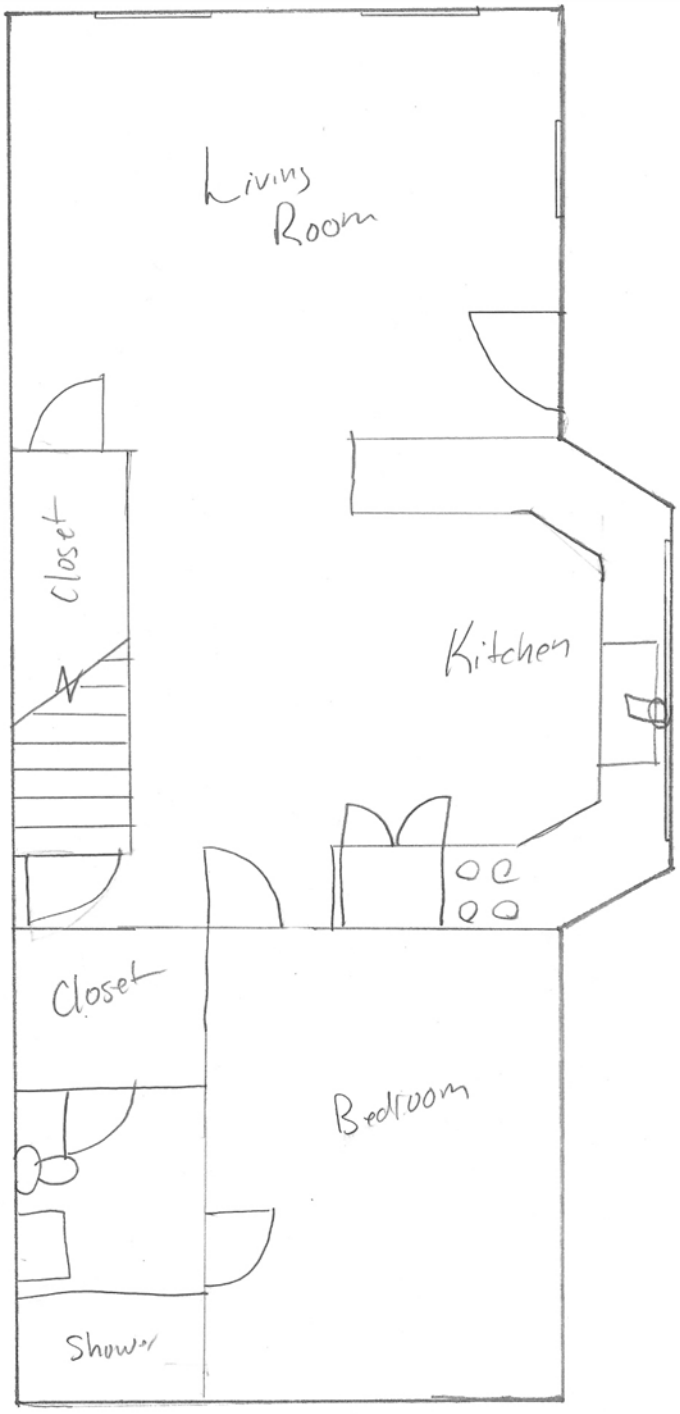
Kenneth Rub
40 Scale

Second Floor
Renovated

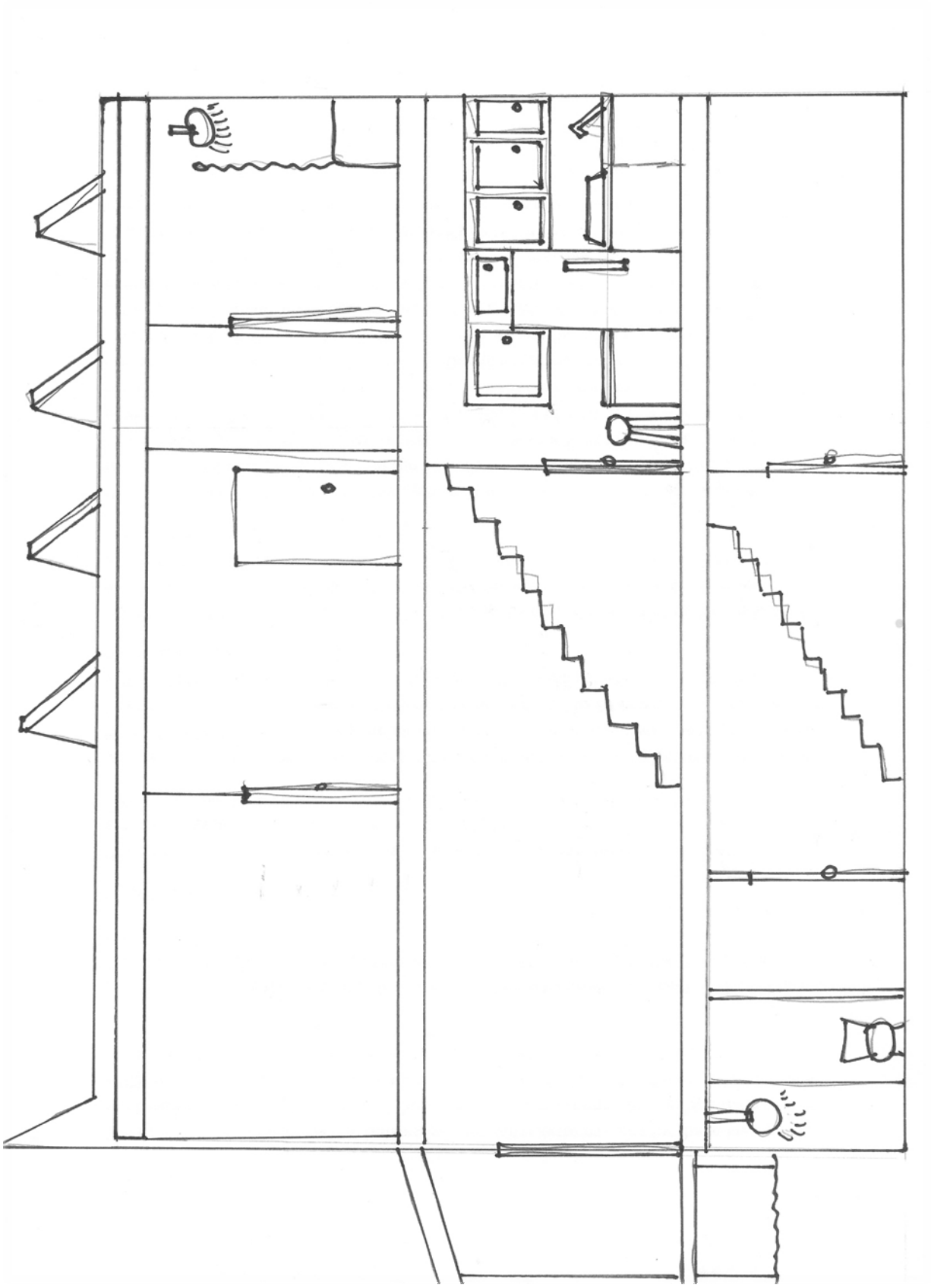


Kenneth Rub
40 Scale

In-law Suite Renovated



Kenneth Rub
40 Scale



322.2 A college or university use permitted in R-2 Districts under § 302.2 shall be permitted as a special exception in an R-3 District if approved by the Zoning Commission under § 3104.

SOURCE: § 3103.4 of the Zoning Regulations effective May 12, 1958; as amended by Final Rulemaking published at 47 DCR 9725, 9730 (December 8, 2000).

323 - 329 [RESERVED]

330 R-4 DISTRICTS: GENERAL PROVISIONS

330.1 The R-4 District is designed to include those areas now developed primarily with row dwellings, but within which there have been a substantial number of conversions of the dwellings into dwellings for two (2) or more families.

330.2 Very little vacant land shall be included within the R-4 District, since its primary purpose shall be the stabilization of remaining one-family dwellings.

330.3 The R-4 District shall not be an apartment house district as contemplated under the General Residence (R-5) Districts, since the conversion of existing structures shall be controlled by a minimum lot area per family requirement.

330.4 Except as provided in chapters 20 through 25 of this title, in an R-4 District, no building or premises shall be used and no building shall be erected or altered that is arranged, intended, or designed to be used except for one (1) or more of the uses listed in §§ 330 through 349.

330.5 The following uses shall be permitted as a matter of right in an R-4 District:

(a) Any use permitted in R-3 Districts under § 320.3;

(b) Flat;

(c) The conversion of a building or other structure existing before May 12, 1958, to an apartment house as limited by §§ 350.4(c) and 401.3;

(d) Child/elderly development center; provided, that the center shall be limited to no more than sixteen (16) individuals;

(e) Child/Elderly development center located in a building that was built as a church and that has been used continuously as a church since it was built; provided, that all of the play space required for the center by the licensing regulations shall be located on the same lot on which the center is located;

(f) Hospital, sanitarium, or clinic for humans;

(g) Private club, lodge, fraternity house, sorority house, or dormitory, except when the use is a service customarily carried on as a business;

(h) Museum; and

(i) Community-based residential facility; provided that, notwithstanding any provision in this title to the contrary, the Zoning Administrator has determined that such community-based residential facility, that otherwise complies with the zoning requirements of this title that are of general and uniform applicability to all matter-of-right uses in an R-4 District, is intended to be operated as housing for persons with handicaps. For purposes of this subsection, a "handicap" means, with respect to a person, a physical or mental impairment which substantially limits one or more of such person's major life activities, or a record of having, or being regarded as having, such an impairment, but such item does not include current, illegal use of, or addiction to, a controlled substance.

330.6 A rooming or boarding house shall be permitted as a matter of right in an R-4 District; provided:

(a) Accommodations are not provided to transient guests who stay ninety (90) days or less at the premises;

(b) No sign is displayed on the premises;

(c) No advertisement is displayed or published on or off the premises holding out the establishment to be a hotel, motel, inn, hostel, bed and breakfast, private club, tourist home, guest house, or other transient accommodation;

(d) Cooking facilities are not provided in any individual unit; and

(e) In a rooming house, no central dining or food preparation area is provided for guests.

SOURCE: §§ 3104.1 and 3104.3 of the Zoning Regulations, effective May 12, 1958; as amended by: Final Rulemaking published at 28 DCR 3482, 3494 (August 7, 1981); Final Rulemaking published at 29 DCR 4913, 4918 (November 5, 1982); Final Rulemaking published at 35 DCR 465, 467 (January 22, 1988); by Final Rulemaking published at 36 DCR 7625 (November 3, 1989); Final Rulemaking published at 46 DCMR 3997, 3998 (April 30, 1999); Final Rulemaking published at 47 DCR 9741-43 (December 8, 2000), incorporating by reference the text of Proposed Rulemaking published at 47 DCR 8335, 8359 (October 20, 2000); and Final Rulemaking published at 49 DCR 2750 (March 22, 2002).

331 ACCESSORY USES AND BUILDINGS (R-4)

331.1 The following accessory uses or accessory buildings incidental to the uses permitted in §§ 330 through 349 shall be permitted in an R-4 District:

(a) Any accessory use or accessory building permitted in R-3 Districts under § 321;

(b) Accessory parking spaces or an accessory parking garage subject to the special provisions of chapters 21 and 23 of this title; and

(c) Other accessory uses, buildings, or structures customarily incidental to the uses permitted in R-4 Districts under the provisions of this chapter, including mechanical amusement machines that are accessory to museum uses, subject to § 2501.

SOURCE: § 3104.5 of the Zoning Regulations, effective May 12, 1958; as amended by Final Rulemaking published at 35 DCR 465, 467 (January 22, 1988); and Final Rulemaking published at 47 DCR 9741-43 (December 8, 2000), incorporating by reference the text of Proposed Rulemaking published at 47 DCR 8335, 8360 (October 20, 2000).

332 SPECIAL EXCEPTIONS: GENERAL (R-4)

332.1 The following uses and structures shall be permitted as special exceptions in an R-4 District if approved by the Board of Zoning Adjustment under § 3104:

(a) The uses and structures permitted in an R-3 District under § 322.1 not permitted as a matter of right under § 330.5; and

(b) Telephone exchange, if declared necessary in the public interest by the Public Utilities Commission, and subject to requirements for setback, screening, or other safeguards as the Board deems necessary for the protection of neighboring property.

332.2 A college or university use permitted in an R-3 District under § 322.2, not permitted as a matter of right under § 330.5 shall be permitted as a special exception in an R-4 District if approved by the Zoning Commission under § 3104.

SOURCE: § 3104.4 of the Zoning Regulations, effective May 12, 1958; as amended by Final Rulemaking published at 47 DCR 9725, 9731 (December 8, 2000).

333 STORAGE AND PARKING ON ALLEY LOTS (R-4)

333.1 Storage of wares and goods, parking lot, parking garage, or public storage garage not otherwise permitted under this chapter, on an alley lot so recorded on the records of the Surveyor, District of Columbia, or recorded on the records of the D.C. Office of Tax and Revenue, on or before November 1, 1957, shall be permitted as a special exception in an R-4 District if approved by the Board of Zoning Adjustment under § 3104, subject to the provisions of this section.

333.2 No storage use authorized in this section shall be located in a building containing more than twenty-five hundred square feet (2,500 ft.^{2}) of gross floor area.

333.3 Any use authorized in this section shall not be likely to become objectionable because of noise, traffic, or number of employees.

333.4 The alley upon which the use is to be located shall be readily negotiable by any trucking necessary for the proposed operation.

333.5 The hours of active operation shall be arranged so as not to prove disturbing or otherwise objectionable to persons residing around the perimeter of the square in which located.

SOURCE: § 3104.43 of the Zoning Regulations, effective May 12, 1958; as amended by Final Rulemaking published at 47 DCR 9741-43 (December 8, 2000), incorporating by reference the text of Proposed Rulemaking published at 47 DCR 8335, 8360 (October 20, 2000).

334 COMMUNITY SERVICE CENTERS (R-4)

334.1 A community service center to accommodate organizations created for the purpose of improving the social or economic well-being of the residents of the neighborhood in which the center is proposed to be located which may include but not be limited to centers for job training, family counseling, consumer cooperatives, and such other facilities as are similar in nature and purpose, shall be permitted as a special exception in an R-4 District if approved by the Board of Zoning Adjustment under § 3104, subject to the provisions of this section.

334.2 A community service center shall be located so that it is not likely to become objectionable to neighboring properties because of noise or other objectionable conditions.

334.3 No structural changes shall be made except those required by other municipal laws or regulations.

334.4 The use shall be reasonably necessary or convenient to the neighborhood in which it is proposed to be located.

334.5 A community service center shall not be organized for profit, and no part of its net income shall inure to the benefit of any private shareholder or individual.

SOURCE: § 3104.46 of the Zoning Regulations, effective May 12, 1958; as added by Case No. 63-63, August 14, 1964; as amended by: Final Rulemaking published at 28 DCR 3482, 3495 (August 7, 1981); Final Rulemaking published at 31 DCR 6585, 6586 (December 28, 1984); Final Rulemaking, 46 DCR 8284, 8287 (October 15, 1999); and Final Rulemaking published at 47 DCR 9741-43 (December 8, 2000), incorporating by reference the text of Proposed Rulemaking published at 47 DCR 8335, 8360 (October 20, 2000).

335 REHABILITATION AND SUBSTANCE ABUSERS' HOMES (R-4)

335.1 Youth rehabilitation homes, adult rehabilitation homes, or substance abusers' homes for one (1) to fifteen (15) persons, not including resident supervisors or staff and their families, shall be permitted as special exceptions in an R-4 District if approved by the Board of Zoning Adjustment under § 3104, subject to the provisions of this section.

335.2 There shall be no other property containing a community-based residential facility for seven (7) or more persons in the same square.

335.3 There shall be no other property containing a community-based residential facility for seven (7) or more persons within a radius of five hundred feet (500 ft.) from any portion of the subject property.

335.4 There shall be adequate, appropriately located, and screened off-street parking to provide for the needs of occupants, employees, and visitors to the facility.

335.5 The proposed facility shall meet all applicable code and licensing and requirements.

335.6 The facility shall not have an adverse impact on the neighborhood because of traffic, noise, operations, or the number of similar facilities in the area.

335.7 The Board may approve more than one (1) community-based residential facility in a square or within five hundred feet (500 ft.) only when the Board finds that the cumulative effect of the facilities will not have an adverse impact on the neighborhood because of traffic, noise, or operations.

335.8 The Board shall not approve more than one (1) youth rehabilitation home, adult rehabilitation home, or substance abusers' home in a square or within five hundred feet (500 ft.) of each other.

335.9 The Board shall submit the application to the D.C. Office of Planning for coordination, review, report, and impact assessment, along with reports in writing of all relevant District of Columbia departments and agencies including, but not limited to, the Departments of Transportation, Human Services, and Corrections and, if a historic district or historic landmark is involved, the State Historic Preservation Officer.

SOURCE: § 3104.47 of the Zoning Regulations, effective May 12, 1958; as added by Final Rulemaking published at 28 DCR 3482, 3495 (August 7, 1981); as amended by Final Rulemaking published at 40 DCR 726 (January 22, 1993); and Final Rulemaking published at 47 DCR 9741-43 (December 8, 2000), incorporating by reference the text of Proposed Rulemaking published at 47 DCR 8335, 8361 (October 20, 2000).

336 - 349 [RESERVED]

Construction
Spreadsheet

722 Gresham Place NW - Construction Budget			
Secure Property	$	200	0.13%
Plans, Permits, Expeditor	$	1,250	0.83%
Foundation / Basement	$	1,000	0.67%
Pest Control	$	500	0.33%
Temporary Requirements	$	4,000	2.67%
Plumbing & Electric Pre-demo	$	500	0.33%
Demo	$	8,000	5.34%
Rough Plumbing	$	5,000	3.34%
Framing & Subfloor	$	16,000	10.68%
Roof Decking	$	1,500	1.00%
Exterior Doors	$	1,800	1.20%
Windows	$	8,500	5.68%
Exterior Trim	$	3,000	2.00%
Roof Replacement	$	4,000	2.67%
New HVAC	$	8,000	5.34%
Tankless Hot Water Heaters	$	2,000	1.34%
Rough Electric	$	4,000	2.67%
Exterior Masonry Repair	$	5,000	3.34%
Insulation	$	5,000	3.34%
Drywall	$	6,000	4.01%
Hardware	$	1,000	0.67%
Cabinetry	$	5,000	3.34%
Interior Doors	$	1,000	0.67%
Pre-painting Cleanup	$	1,000	0.67%
Interior Paint	$	5,000	3.34%
Countertops	$	5,000	3.34%
Tile	$	8,000	5.34%
Final Plumbing	$	3,000	2.00%
Final Electric	$	3,000	2.00%
Plumbing Fixtures	$	4,000	2.67%
Bamboo Floors	$	7,500	5.01%
Lockout	$	1,500	1.00%
Mirrors & Shower Doors	$	2,000	1.34%
Appliances	$	7,000	4.67%
Lanscaping	$	1,500	1.00%
Final Cleaning	$	1,000	0.67%
Punchlist	$	2,000	1.34%
Repour Front Stairs	$	2,000	1.34%
Back Deck	$	4,000	2.67%
Total Construction	**$**	**149,750**	
20% Contractor Profit	$	29,950	
Solar Installation (net REPD funds)	$	15,000	
	$	**194,700**	

Financial Analysis
Spreadsheets

Gresham Place Investment Property Scenario #1

Sales Price **$ 554,000.00** **After DC Transfer & Commissions:** **$ 518,267.00**

Budgets	Project		Loan
Acquisition	$ 195,000	0.70	$ 136,500
Legal	$ 1,000	0.80	$ 800
Closing Costs	$ 3,500	0.80	$ 2,800
Appraisal	$ 500	0.80	$ 400
Finance Costs	$ 20,000	0.80	$ 16,000
RE Tax	$ 1,100	0.80	$ 880
Insurance	$ 1,000	0.80	$ 800
Title Insurance	$ 1,500	0.80	$ 1,200
Contingency	$ 15,000	0.80	$ 12,000
Loan Fee	$ 3,300	0.80	$ 2,640
Construction	$ 194,700	0.80	$ 155,760
Total	**$ 436,600.00**		**$ 329,780**

Break-even Price: $ 472,333

LTV: **59.5%**

Loan		$	329,780
Equity		**$**	**106,820**
DC Transfer Tax	1.45%	$	8,033
Commission	5.0%	$	27,700
Net		$	188,487
Pay back equity		$	(106,820)
Profit		**$**	**81,667**
Return on Equity - One Year			76.5%
Return on Equity - 9 months			113.2%
Return on Equity - 6 months			211.4%

Loan interest - 12 months @ 7.5% applied to 80% of loan budget
$ 19,786.80

Cash on Cash (removed finance charge) $ 413,300
Yield- 1 year 25.4%
Yield - 9 month 35.2%
Yield - 6 month 57.2%

Rental Scenario

Mortgage Payment:	$	2,828
Rent Comps	$	3,700
Annualized		
Rent Comps	$	44,400
Mortgage	$	33,939
RE Taxes	$	4,000
Insurance	$	600
Maintenance	$	750
CF:	**$**	**5,111**
Equity	**$**	**110,800.00**
Before-tax Return		**4.6%**

6.5%, 30 year mortgage

Gresham Place Investment Property Scenario #2

Sales Price		**$ 554,000.00**		**After DC Transfer & Commissions:**	**$ 518,267.00**

Budgets	**Project**		**Loan**
Acquisition	$ 213,500	0.70	$ 149,450
Legal	$ 1,000	0.80	$ 800
Closing Costs	$ 3,500	0.80	$ 2,800
Appraisal	$ 500	0.80	$ 400
Finance Costs	$ 20,000	0.80	$ 16,000
RE Tax	$ 1,100	0.80	$ 880
Insurance	$ 1,000	0.80	$ 800
Title Insurance	$ 1,500	0.80	$ 1,200
Contingency	$ 15,000	0.80	$ 12,000
Loan Fee	$ 3,300	0.80	$ 2,640
Construction	$ 194,700	0.80	$ 155,760
Total	**$ 455,100.00**		**$ 342,730**

Break-even Price: $ 490,833

LTV: 61.9%

Loan		$	342,730
Equity		**$**	**112,370**
DC Transfer Tax	1.45%	$	8,033
Commission	5.0%	$	27,700
Net		$	175,537
Pay back equity		$	(112,370)
Profit		**$**	**63,167**
Return on Equity - One Year			56.2%
Return on Equity - 9 months			81.3%
Return on Equity - 6 months			144.0%

Loan Interest - 12 months @ 7.5% applied to 80% of loan budget
$ 20,563.80

Cash on Cash (removed finance charge)		$ 431,800
Yield- 1 year	20.0%	
Yield - 9 month	27.6%	
Yield - 6 month	44.1%	

Rental Scenario			
Mortgage Payment:		$	2,828
Rent Comps		$	3,700
Annualized			
Rent Comps		$	44,400
Mortgage		$	33,939
RE Taxes		$	4,000
Insurance		$	600
Maintenance		$	750
CF:		**$**	**5,111**
Equity		**$**	**110,800.00**
Before-tax Return			**4.6%**

6.5%, 30 year mortgage

Gresham Place Investment Property Scenario #3

Sales Price		**$ 554,000.00**		**After DC Transfer & Commissions:**	**$ 518,267.00**

Budgets	**Project**		**Loan**
Acquisition	$ 250,000	0.70	$ 175,000
Legal	$ 1,000	0.80	$ 800
Closing Costs	$ 3,500	0.80	$ 2,800
Appraisal	$ 500	0.80	$ 400
Finance Costs	$ 20,000	0.80	$ 16,000
RE Tax	$ 1,100	0.80	$ 880
Insurance	$ 1,000	0.80	$ 800
Title Insurance	$ 1,500	0.80	$ 1,200
Contingency	$ 15,000	0.80	$ 12,000
Loan Fee	$ 3,300	0.80	$ 2,640
Construction	$ 194,700	0.80	$ 155,760
Total	**$ 491,600.00**		**$ 368,280**

Break-even Price: $ 527,333

LTV: 66.5%

Loan		$	368,280
Equity		**$**	**123,320**
DC Transfer Tax	1.45%	$	8,033
Commission	5.0%	$	27,700
Net		$	149,987
Pay back equity		$	(123,320)
Profit		**$**	**26,667**
Return on Equity - One Year			21.6%
Return on Equity - 9 months			29.8%
Return on Equity - 6 months			47.9%

Loan Interest - 12 months @ 7.5% applied to 80% of loan budget
$ 22,096.80

Cash on Cash (removed finance charge)		$ 468,300
Yield- 1 year	10.7%	
Yield - 9 month	14.5%	
Yield - 6 month	22.5%	

Rental Scenario			
Mortgage Payment:		$	2,828
Rent Comps		$	3,700
Annualized			
Rent Comps		$	44,400
Mortgage		$	33,939
RE Taxes		$	4,000
Insurance		$	600
Maintenance		$	750
CF:		**$**	**5,111**
Equity		**$**	**110,800.00**
Before-tax Return			**4.6%**

6.5%, 30 year mortgage

LEED for HOMES

Project Checklist

(Version 1.72 - August 18, 2005)

Builder Name:

Address (Street/City/State):

Yes	?	No						Maximum Points [2] Dry	Normal	Wet
HOLD			1	LEED-ND Neighborhood			LL2-5		10	
✓			2	Site Selection		Avoid Environmentally Sensitive Sites and Farmland	LL1		2	
✓			3.1	Infrastructure		Site within 1/2 Mile of Existing Water, Sewer, and Roads	LL1		1	
✓			3.2			Select an Infill Site	LL1		1	
✓			4.1	Community Resources		Within 1/4 mile of Basic Community Resources / Public Transportation	LL1		1	
✓			4.2		*OR*	Within 1/4 Mile of Extensive Community Resources / Public Transportation	LL1		2	
✓			4.3		*AND/OR*	Within 1/2 Mile of Green Spaces	LL1		1	
✓			5.1	Compact Development		Average Housing Density >/= 7 Units / Acre	LL1		1	
✓			5.2		*OR*	Average Housing Density >/= 10 Units / Acre	LL1		2	
✓			5.3		*OR*	Average Housing Density >/= 20 Units / Acre	LL1		3	
			Sub-Total							
Yes	?	No								
			1.1	Site Stewardship		Minimize Disturbed Area of Site (If Site > 1/3 Acre)			Required	
			1.2			Erosion Controls (During Construction)			Required	
			2.1	Landscaping		Basic Landscaping Design			Required	
✓			2.2			Apply 3 to 4 Inches of Mulch Around Plants			1	
			2.3			Limit Turf		5	3	1
			2.4			Minimize Landscape Water Demand		3	2	1
			3	Shading of Hardscapes		Locate and Plant Trees to Shade Hardscapes			1	
			4.1	Surface Water Management		Install Permeable Material for at Least 65% of Lot (If Lot >/= 1/4 acre)			Required	
			4.2			Use Permeable Paving Materials		1	3	5
			4.3			Design and Install Permanent Erosion Controls		1	2	3
✓			5	Non-Toxic Pest Control		Select Insect and Pest Control Alternatives from List			2	
			Sub-Total							
Yes	?	No								
			1.1	Water Reuse		Rainwater Harvesting System			1	
			1.2			Grey Water Re-Use System			1	
			2.1	Irrigation System		Main Shutoff Valve, Sub-Meter, and Third-Party Inspection			Required	
			2.2			Select High Efficiency Measures from List		5	3	1
			2.3			Rain Sensing Controls			1	
✓			3.1	Indoor Water Use		High Efficiency Fixtures (Toilets, Showers, and Faucets)			3	
			3.2		OR	Very High Efficiency Fixtures (Toilets, Showers, and Faucets)			6	
			Sub-Total							
Yes	?	No								
			1	ENERGY STAR with IAP		Meets ENERGY STAR w/ Indoor Air Package (IAP)	IE2-10		10	
			2.1	Combustion Venting		Space Heating and DHW Equip w/ Closed/Power-Exhaust; & CO Monitor	IE1		Required	
			2.2			Fireplaces w/ Outside Air Supply and Closed Combustion	IE1		Required	
			3	Humidity Control		Analyze Moisture Loads AND Install Central System (where Needed)	IE1		1	
			4.1	Outdoor Air Ventilation		Meets ASHRAE Std 62.2	IE1		Required	
			4.2			Dedicated Outdoor Air System (w/ Heat Recovery)	IE1		2	
			4.3			Third-Party Testing of Outdoor Air Flow Rate into Home			1	
			5.1	Local Exhaust		Meets ASHRAE Std 62.2	IE1		Required	
			5.2			Timer / Automatic Controls for Bathroom Exhaust Fans	IE1		1	
			5.3			Third-Party Testing of Exhaust Air Flow Rate Out of Home			1	
			6.1	Supply Air Distribution		Meets ACCA Manual D	IE1		Required	
			6.2			Third-Party Testing of Supply Air Flow into Each Room in Home			2	
			7.1	Supply Air Filtering		>/= 8 MERV Filters, w/ Adequate System Air Flow	IE1		Required	
			7.2			>/= 10 MERV Filters, w/ Adequate System Air Flow			1	
			7.3		*OR*	>/= 12 MERV Filters, w/ Adequate System Air Flow			2	
			8.1	Contaminant Control		Seal-Off Ducts During Construction	IE1		Required	
			8.2			Permanent Walk-Off Mats *OR* Central Vacuum			1	
✓			8.3			Third-Party Testing of Particulates and VOCs before Occupancy			1	
			9.1	Radon Protection		Install Radon Mitigation System if Home is Located in EPA Region 1	IE1		Required	
			9.2			Install Ground Contaminant Mitigation System (Outside of EPA Region 1)	IE1		1	
			10.1	Vehicle Emissions Protection		No Air Handling Equipment OR Return Ducts in Garage	IE1		Required	
			10.2			Tightly Seal Shared Surfaces between Garage and Home	IE1		Required	
✓			10.3			Exhaust Fan in Garage OR No Garage in Contact with Home	IE1		1	
			Sub-Total							

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Yes	?	No							
✓				1	**Home Size**	Home that is Smaller than National Average			10
✓				2.1	**Material Efficient Framing**	No Extra Uses of Lumber for Aesthetic Purposes			Required
				2.2		Advanced Framing Techniques			2
				3	**Local Sources**	Materials Extracted / Manufactured / Produced within 500 Miles			3
				4.1	**Durability Plan**	Detailed Durability Plan; (Pre-Construction)			Required
				4.2		Third-Party Verification of Implementation of Durability Plan		1 3	5
				5.1	**Environmentally Preferable**	Tropical Hardwoods, if used, must be FSC			Required
✓				5.2	**Products**	Select Environmentally Preferable Products from List			4
				6.1	**Waste Management**	Max of 2.5 Lbs Per Square Foot of Construction Waste Sent to Landfill			Required
				6.2		0.5 Pts for Each Additional 0.5 Lbs Per Square Foot Reduction			2
			Sub-Total						
Yes	?	No							
				1.1	**ENERGY STAR Home**	Meets ENERGY STAR for Homes with Third-Party Testing			Required
				1.2		Exceeds ENERGY STAR for Homes, 2 Pts Per HERS Point > HERS 86	EA2-7		16
				2.1	**Insulation**	Third-Party Inspection of Insulation Installation, At Least HERS Grade II	EA1		Required
				2.2		Third-Party Inspection of Insulation Installation, At Least HERS Grade I	EA1		1
✓				2.3		***OR*** Above Code Insulation; At Least 5% > Local Code Per REScheck	EA1		1
				3.1	**Air Infiltration**	Third-Party Envelope Air Leakage Tested </= 0.35 ACH	EA1		Required
				3.2		Third-Party Envelope Air Leakage Tested </= 0.25 ACH	EA1		1
✓				3.3		***OR*** Third-Party Envelope Air Leakage Tested </= 0.15 ACH	EA1		2
				4.1	**Windows**	Windows Meet ENERGY STAR for Windows (See Table)	EA1		Required
✓				4.2		Windows Exceed ENERGY STAR for Windows by >/= 10% (See Table)	EA1		1
				4.3		***OR*** Windows Exceed ENERGY STAR for Windows by >/= 20% (See Table)	EA1		2
				5.1	**Duct Tightness**	Third-Party Duct Leakage Tested </= 5.0 CFM25 / 100 SF to Outside	EA1		Required
✓				5		Third-Party Duct Leakage Tested </= 3.0 CFM25 / 100 SF to Outside	EA1		1
				5.3		***OR*** Third-Party Duct Leakage Tested </= 1.0 CFM25 / 100 SF to Outside	EA1		2
				6.1	**Space Heating and Cooling**	Meets ENERGY STAR for HVAC w/ Manual J & refrigerant charge test	EA1		Required
✓				6.2		Exceeds ENERGY STAR for HVAC by >/= 10%, w/ Manual J	EA1		1
				6.3		***OR*** Exceeds ENERGY STAR for HVAC by >/= 20%, w/ Manual J	EA1		3
✓				7.1	**Water Heating**	Improved Hot Water Distribution System			3
				7.2		Improved Water Heating Equipment	EA1		3
✓				8.1	**Lighting**	Energy Efficient Fixtures and Controls			1
				8.2		***OR*** ENERGY STAR Advanced Lighting Package			3
✓				9.1	**Appliances**	Select Appliances from List			2
				9.2		Very Efficient Clothes Washer (MEF > 1.8, *AND* WF< 5.5)			1
✓				10	**Renewable Energy**	Renewable Electric Generation System (1 Point / 10% Annual Load Reduction)			6
✓				11	**Refrigerant Management**	Minimize Ozone Depletion and Global Warming Contributions			1
			Sub-Total						
Yes	?	No							
				1.1	**Homeowner Education**	Basic Owner's Manual and Walkthrough of LEED Home			Required
✓				1.2		Comprehensive Owner's Manual and Multiple Walkthroughs / Trainings			1
			Sub-Total						
Yes	?	No							
				1.1	**Innovative Design**	Provide Description and Justification for Specific Measure			1
				1.2		Provide Description and Justification for Specific Measure			1
				1.3		Provide Description and Justification for Specific Measure			1
				1.4		Provide Description and Justification for Specific Measure			1
			Sub-Total						
			Project Totals [1] (pre-certification estimates)						108

Notes: 1. **Certified** 30-49 points **Silver** 50-69 points **Gold** 70-89 points **Platinum** 90-108 points
2. "Points" are shown for 3 precipitation zones: Dry (< 20 inches / year); Normal (20-40 inches / year); and Wet (> 40 inches / year)

I hereby attest that I have verified all of the indicated credits above as installed in the home identified above.

Rater's Name _____ Company _____

Signature _____ Date _____

I hereby attest that I have reviewed the verification information, and certify that this home meets the requirements of LEED for Homes

Provider's Name _____ Company _____

Signature _____ Date _____

→ 54 points

Solar Savings Analysis

PVWatts AC Energy & Cost Savings

Cautions for interpreting the Results

VALIGN=TOP ALIGN=CENTER>

Station Identification	
City:	Sterling
State:	VA
Latitude:	38.95° N
Longitude:	77.45° W
Elevation:	82 m
PV System Specifications	
DC Rating:	2.5 kW
DC to AC Derate Factor:	0.770
AC Rating:	1.9 kW
Array Type:	Fixed Tilt
Array Tilt:	39.0°
Array Azimuth:	180.0°
Energy Specifications	
Cost of Electricity:	10.4 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.59	221	23.03
2	4.28	232	24.17
3	4.80	281	29.28
4	5.34	290	30.22
5	5.32	283	29.49
6	5.66	292	30.43
7	5.46	285	29.70
8	5.38	286	29.80
9	5.07	266	27.72
10	4.72	264	27.51
11	3.56	200	20.84
12	3.03	178	18.55
Year	4.68	3080	320.94

Output Hourly Performance Data | Output Results as Text

About the Hourly Performance Data | Saving Text from a Browser

Run PVWATTS v.1 for another US location or an International location
Run PVWATTS v.2 (US only)

Please send questions and comments regarding PVWATTS to Webmaster

Disclaimer and copyright notice

RReDC Return to RReDC home page (http://rredc.nrel.gov)

http://rredc.nrel.gov/solar/codes_algs/PVWATTS/version1/US/code/pvwattsv1.cgi 11/22/2008

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GreenDoor Investments

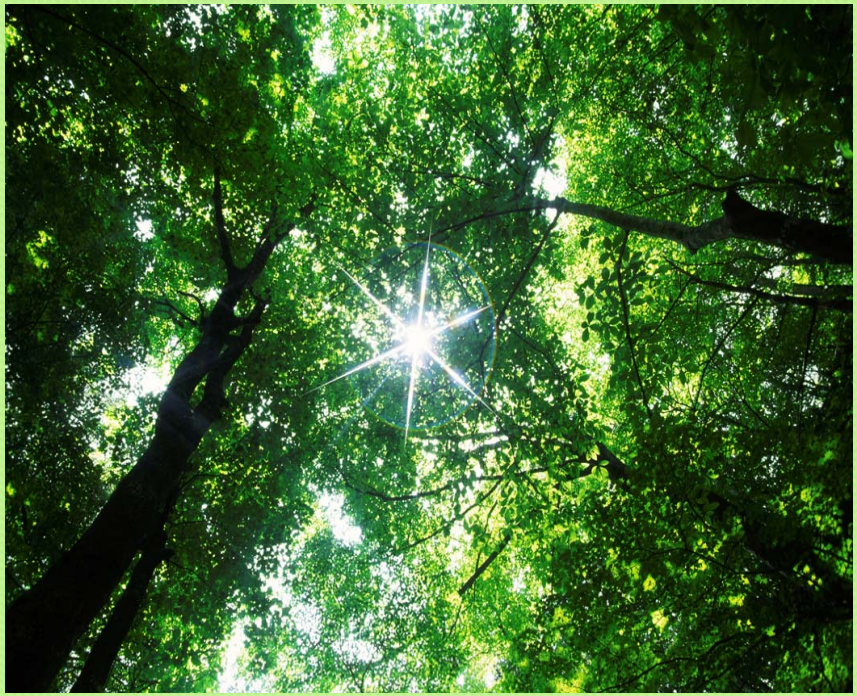
Investor Presentation

Kenneth W. Rub

Advisor, Jay Gouline

Green Investing

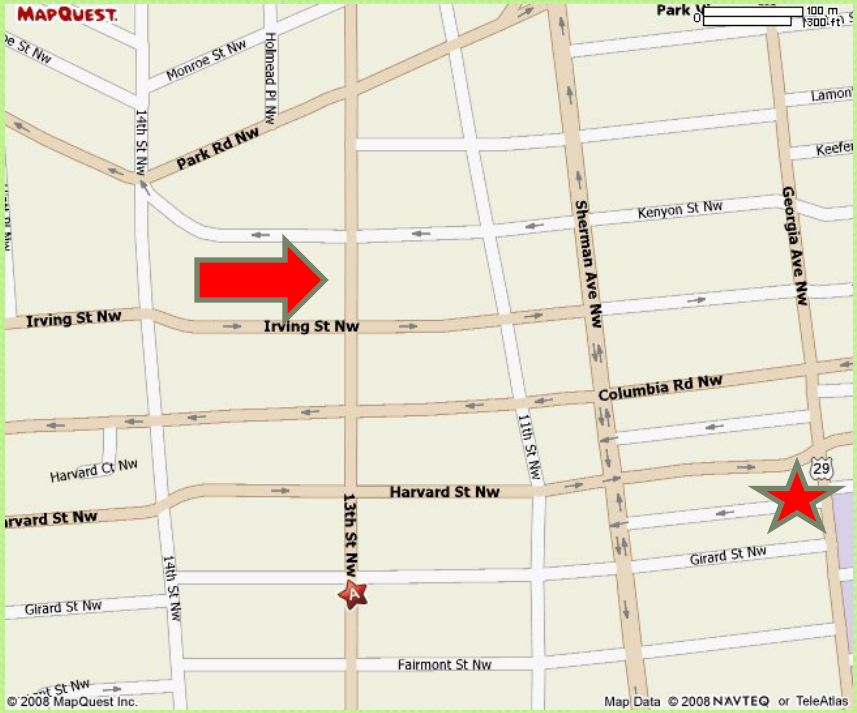
- Create Energy Efficient Homes, one property at a time
- Reduce Carbon Footprint
- Save Natural Resources
- Create Healthy Non-toxic Homes
- Generate Return on Your Green Investment



722 Gresham Place, NW

- Desirable Columbia Heights location
- Near mass transit
- Near job centers
- Near shopping
- Currently inhabitable
- North-south facing property

Convenient Location



Columbia Heights

Population	**36,545**
Male	51.4%
Female	48.6%
Households	14,360
Average Household Size	2.5
Owner Occupied Households	23.9%
Average Household Income	$55,190
Median Household Income	$37,653
Average consumer Expenditures per Household	$18,900
Median Age	32.7 years

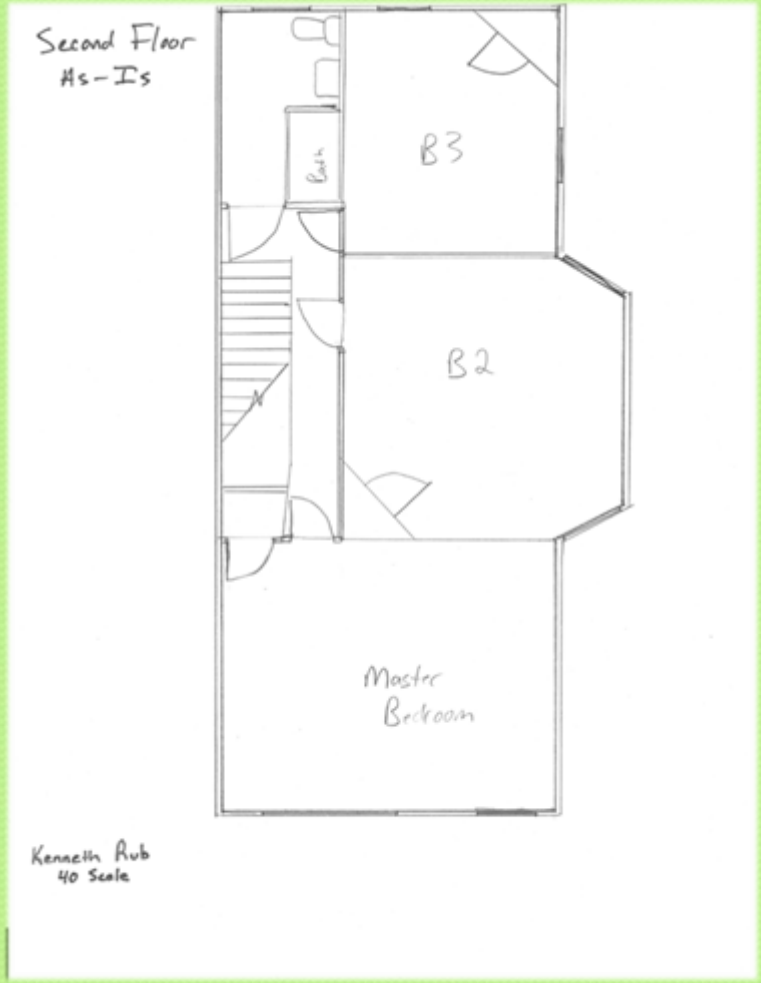
Existing Property

- Three Bedroom, One Bath Duplex
- Living Room, Dining Room, Kitchen on 1st Floor
- Basement – Open Space, Access from Outside
- Wrap-Around Front Porch
- Needs Gut Rehab

Existing Conditions

Existing Condition

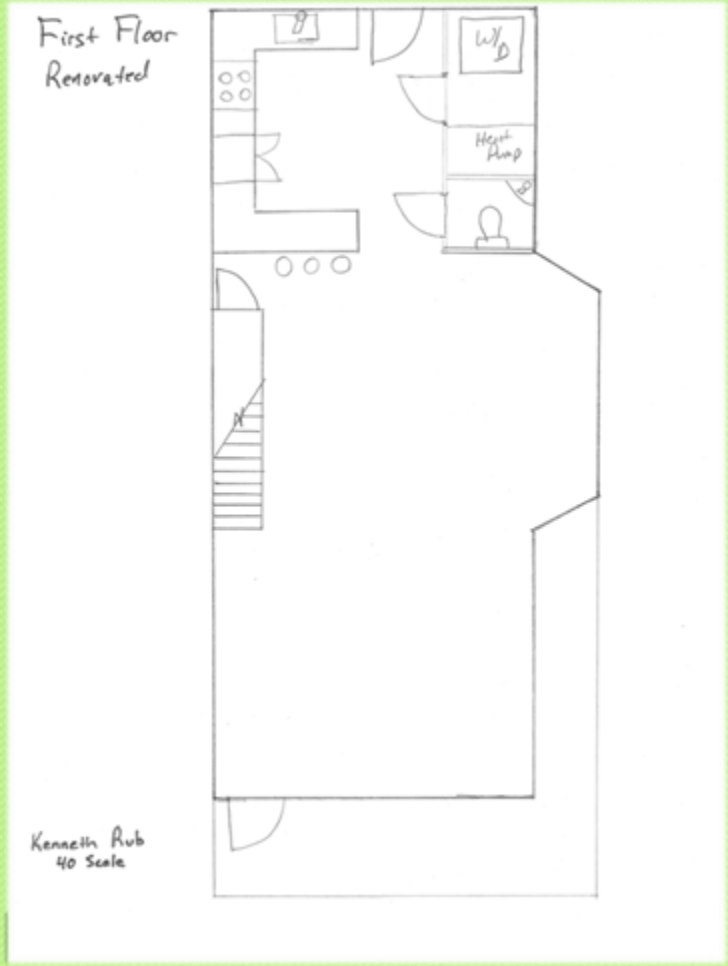
Existing Floor Plan

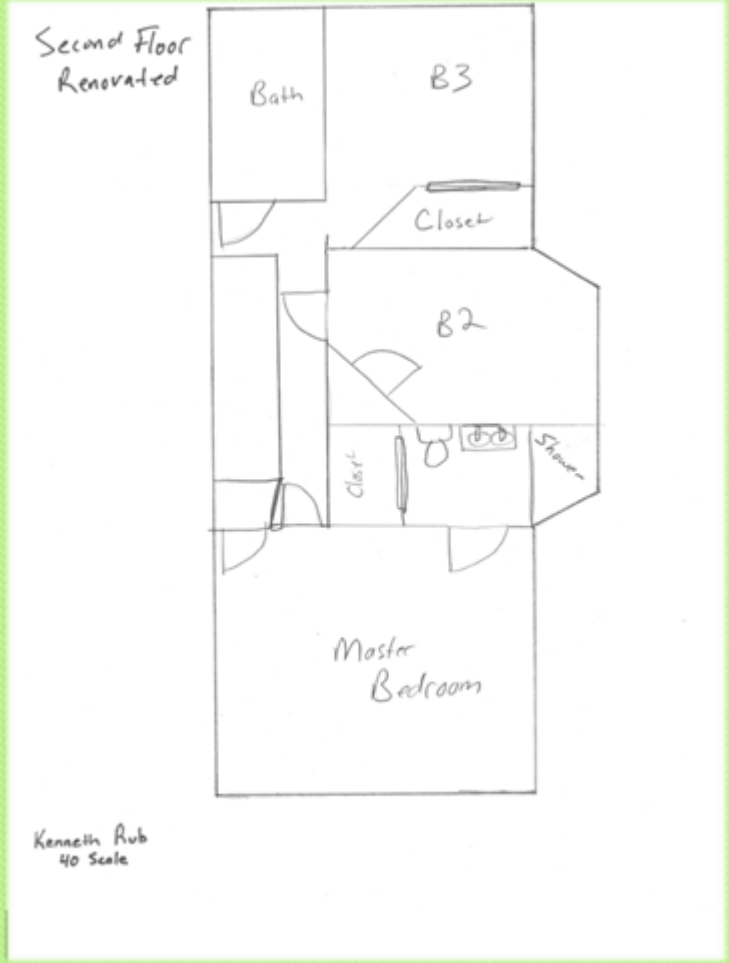


Renovation Plan

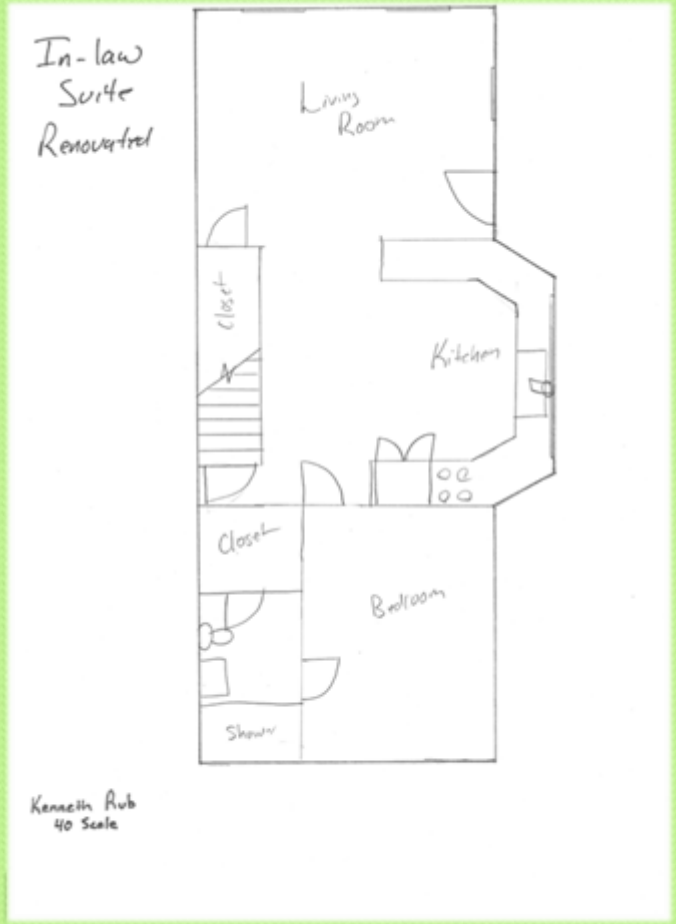
- Improve Energy Efficiency by over 60% (discussed later in presentation)
- Add in-law suite in basement – including kitchen and bathroom
- Open-floor-plan on first floor from front door to back door
- Add ½ bath on first floor
- Add master bath to second floor

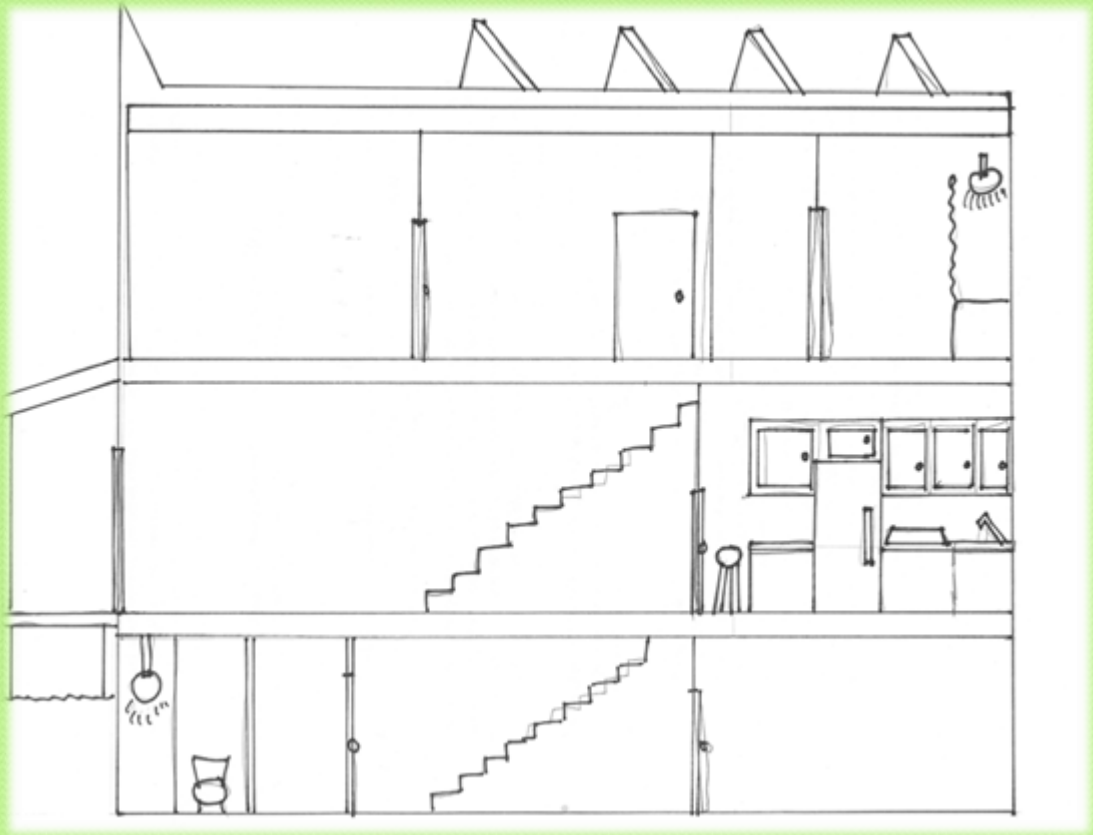
Renovation Plan





Renovation Plan



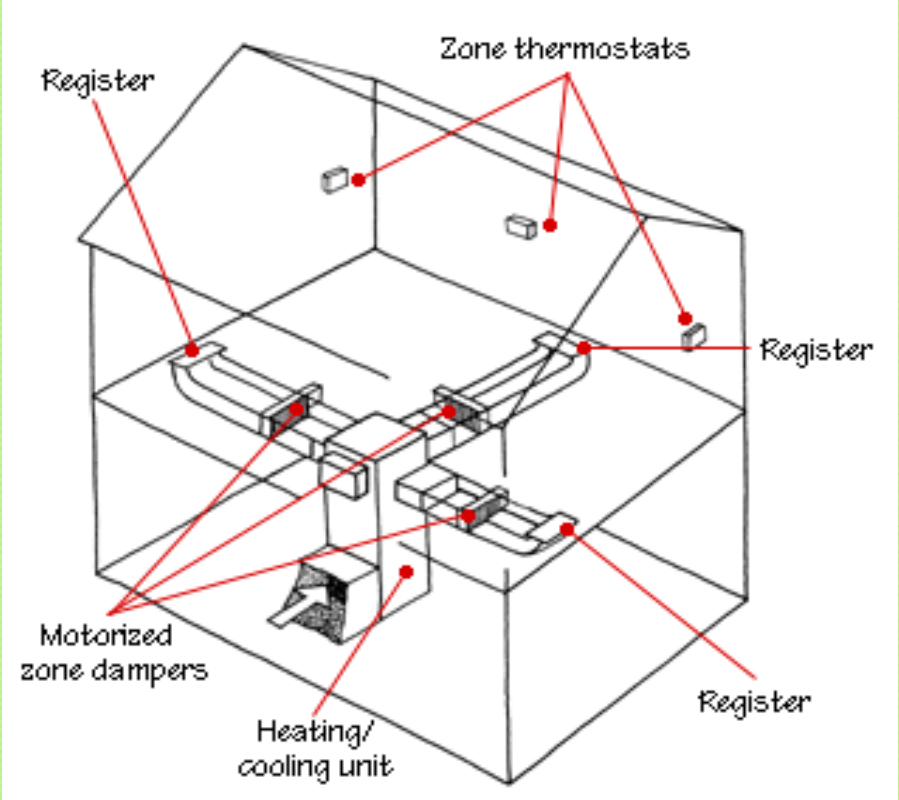


Energy Efficiency

- Icynene Insulation
  - Sprayed In
  - Non Toxic
  - Can save up to 50% in heating and cooling
- High Efficiency Casement Windows
  - Double Pane
  - Tighter Seal
  - Low-E Glass

Enery Efficiency

- High Efficiency HVAC
  - Two Speed Compressor
  - Variable Speed Fan
  - Zoned
- Tankless Hot Water
  - Only heats water when needed
  - Space-saving



Energy Efficiency

- Passive Solar Heating
- Energy-star Appliances
  - Refrigerator
  - Dishwasher
  - Wash Machine
- Fluorescent and LED Lighting

Energy Efficiency

- Solar Photovoltaic System
  - 2.5 kw System
  - Generates 3,080 kwh per year
  - Average US home consumes 10,000 kwh per year
  - DC provides funding up to $3.00 per watt

Energy Savings

- Energy-saving systems (insulation, HVAC, appliances, windows, etc.) save 32.5%, compared to an average home. (conservative)
- Solar Power System generates 30% of the homes energy needs.
- 722 Gresham Place will become more than 60% more energy efficient

Healthy Homes

- Select paints, adhesives, cabinets, and carpets with Low Volatile Organic Compounds, which can off-gas for years.
- Health effects can include headaches, nausea, irritation of eyes, nose, and throat, and damage to vital organs and systems.

Recycled & Green Materials

- Bamboo flooring and cabinets reduce cutting of hardwood forests.
- Bathroom and kitchen countertops made of recycled concrete, glass, porcelain.
- Natural carpets

Construction Budget

- Total Construction Budget: $194,700
- Bid from Experienced Local Contractor
- Net of Renewable Energy Demonstration Project refund
- 20% Contractor Profit

722 Gresham Place NW - Construction Budget			
Secure Property	$	200	0.13%
Plans, Permits, Expeditor	$	1,250	0.83%
Foundation / Basement	$	1,000	0.67%
Pest Control	$	500	0.33%
Temporary Requirements	$	4,000	2.67%
Plumbing & Electric Pre-demo	$	500	0.33%
Demo	$	8,000	5.34%
Rough Plumbing	$	5,000	3.34%
Framing & Subfloor	$	16,000	10.68%
Roof Decking	$	1,500	1.00%
Exterior Doors	$	1,800	1.20%
Windows	$	8,500	5.68%
Exterior Trim	$	3,000	2.00%
Roof Replacement	$	4,000	2.67%
New HVAC	$	8,000	5.34%
Tankless Hot Water Heaters	$	2,000	1.34%
Rough Electric	$	4,000	2.67%
Exterior Masonry Repair	$	5,000	3.34%
Insulation	$	5,000	3.34%
Drywall	$	6,000	4.01%
Hardware	$	1,000	0.67%
Cabinetry	$	5,000	3.34%
Interior Doors	$	1,000	0.67%
Pre-painting Cleanup	$	1,000	0.67%
Interior Paint	$	5,000	3.34%
Countertops	$	5,000	3.34%
Tile	$	8,000	5.34%
Final Plumbing	$	3,000	2.00%
Final Electric	$	3,000	2.00%
Plumbing Fixtures	$	4,000	2.67%
Bamboo Floors	$	7,500	5.01%
Lockout	$	1,500	1.00%
Mirrors & Shower Doors	$	2,000	1.34%
Appliances	$	7,000	4.67%
Lanscaping	$	1,500	1.00%
Final Cleaning	$	1,000	0.67%
Punchlist	$	2,000	1.34%
Repour Front Stairs	$	2,000	1.34%
Back Deck	$	4,000	2.67%
Total Construction	$	149,750	
20% Contractor Profit	$	29,950	
Solar Installation (net REPD funds)	$	15,000	
	$	194,700	

Project Budget

- Assumes $195,000 acquisition cost
- 65% LTV Financing
- 10% Contingency
- Total Project Costs of $436,600.

Budgets	Project
Acquisition	$ 195,000
Legal	$ 1,000
Closing Costs	$ 3,500
Appraisal	$ 500
Finance Costs	$ 20,000
RE Tax	$ 1,100
Insurance	$ 1,000
Title Insurance	$ 1,500
Contingency	$ 15,000
Loan Fee	$ 3,300
Construction	$ 194,700
Total	**$ 436,600.00**

Comparables

- Looked at 3-bedroom homes in Columbia Heights – Active, Under Contract, and Sold in last 180 days.
- Adjusted for location, parking, condition, time on market, and in-law suite.
- Range from $445,000 to $604,000
- Average was $532,000
- Best Comp was $545,000, which needed no adjustments.
- Valuation: $540,000

Valuation of Energy Savings

- Estimated Energy Savings at $1,140/year
- Applying an 8% cap rate, value of the savings is $14,250

- Final Valuation:

- $540,000 + $14,250 = $554,250

- Rounded down to $554,000

Expected Return

- Based on research, the unleveraged return for a gut rehab is 20%
- 15% for a moderate rehab
- 10% for a paint and sell

20%

Pro Forma Returns

Sales Price:	$554,000
Less	
Project Budget	$436,600
Transfer Costs	$35,733
Net Income:	**$81,667**

Unleveraged Return: **25.4%**

Leveraged Return with $106,820 in Equity: **76.5%**

Subscription

- Minimum Investment - $5,000
- Minimum Fund Size - $300,000
- Preferred Return – 8%

Please fill out attached subscription agreement and attach your check!

Questions?